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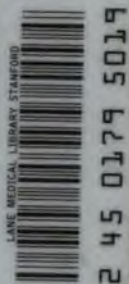
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MYOLOGY



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1

AN ATLAS
OF
HUMAN ANATOMY
FOR STUDENTS AND PHYSICIANS

BY
CARL TOLDT, M.D.
PROFESSOR OF ANATOMY IN THE UNIVERSITY OF VIENNA

ASSISTED BY
PROFESSOR ALOIS DALLA ROSA, M.D.

Translated from the Third German Edition and adapted to English and American and
International Terminology

BY
M. EDEN PAUL, M.D. BRUX., M.R.C.S., L.R.C.P.

THIRD SECTION
D. MYOLOGY
(FIGURES 490 TO 640 AND INDEX)



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MYOLOGY

ERRATA IN PART III. OF TOLDT'S "ATLAS OF HUMAN ANATOMY."

Page 322, left-hand column, eighth entry, after the words "**Anterior annular ligament of the wrist**" add the words "**(superficial layer),**" and refer to note ²¹⁴ in the Appendix to Part V.

Page 324, left-hand column, seventh entry, after the words "**Remains of the anterior annular ligament of the wrist**" add the words "**(deep layer),**" and refer to note ²¹⁴ in the Appendix to Part V.

Page 332, right-hand column, third entry, after the words "**Anterior annular ligament of the wrist**" add the words "**(superficial layer),**" and refer to note ²¹⁴ in the Appendix to Part V.

Page 334, right-hand column, second entry, after the words "**Anterior annular ligament of the wrist**" add the words "**(deep layer),**" and refer to note ²¹⁴ in the Appendix to Part V.

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MYOLOGY—GENERAL CONSIDERATIONS

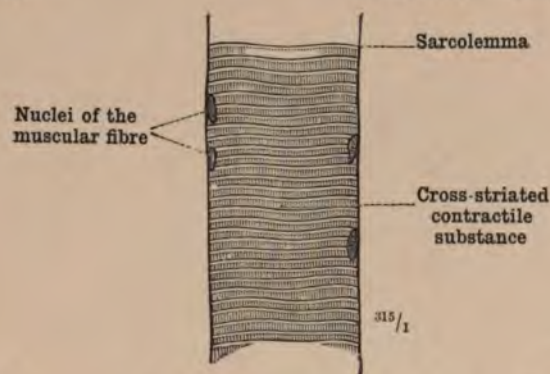


FIG. 490.—A PORTION OF AN ISOLATED CROSS-STRIATED MUSCULAR FIBRE.

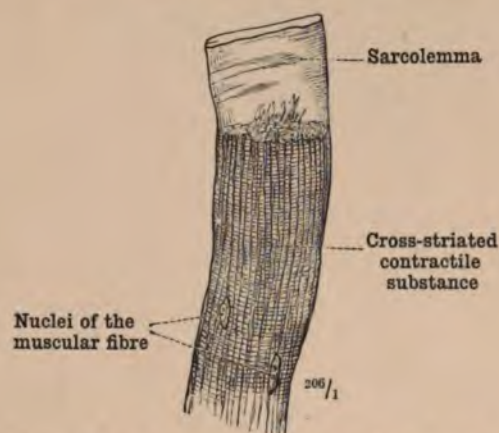


FIG. 491.—A PORTION OF AN ISOLATED CROSS-STRIATED MUSCULAR FIBRE IN WHICH FOR A SHORT DISTANCE THE CONTRACTILE SUBSTANCE HAS BEEN REMOVED FROM THE SARCOLEMA.

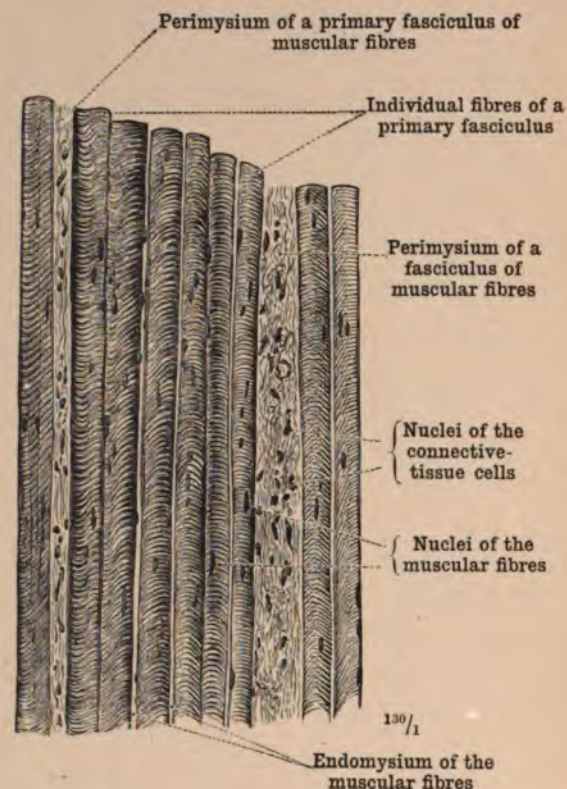


FIG. 492.—FASCICULUS OF MUSCULAR FIBRES FROM A LONGITUDINAL SECTION OF THE HUMAN SARTORIUS MUSCLE, HARDENED IN PICRIC ACID SOLUTION.

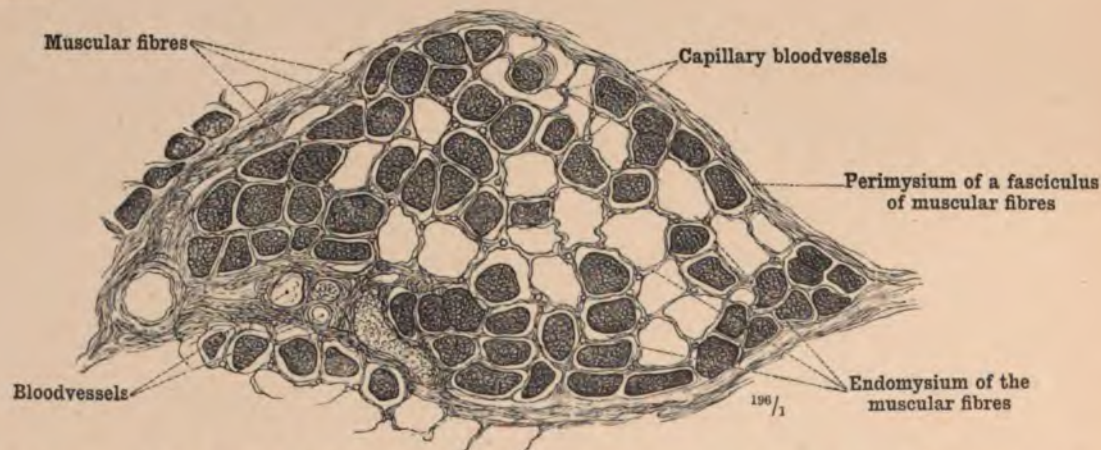


FIG. 493.—FASCICULI OF MUSCULAR FIBRES IN TRANSVERSE SECTION. SOME OF THE FASCICULI HAVE FALLEN OUT OF THE SECTION. IN THE PERIMYSIUM OF THE FASCICULI NUMEROUS CAPILLARY BLOODVESSELS ARE SEEN IN TRANSVERSE SECTION. (FROM A TRANSVERSE SECTION OF THE HUMAN SARTORIUS MUSCLE, HARDENED IN PICRIC ACID SOLUTION AND ALCOHOL.)

Elementary Constituents and Structure of Muscle.

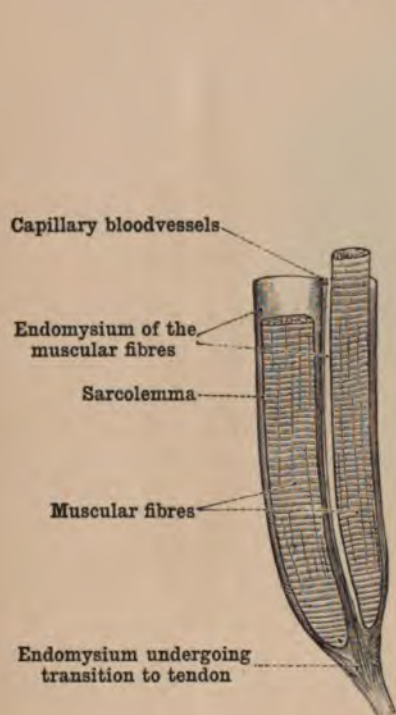


FIG. 494.—DIAGRAMMATIC REPRESENTATION OF THE RELATION OF THE MUSCULAR FIBRES TO THE ENDOMYSIUM.

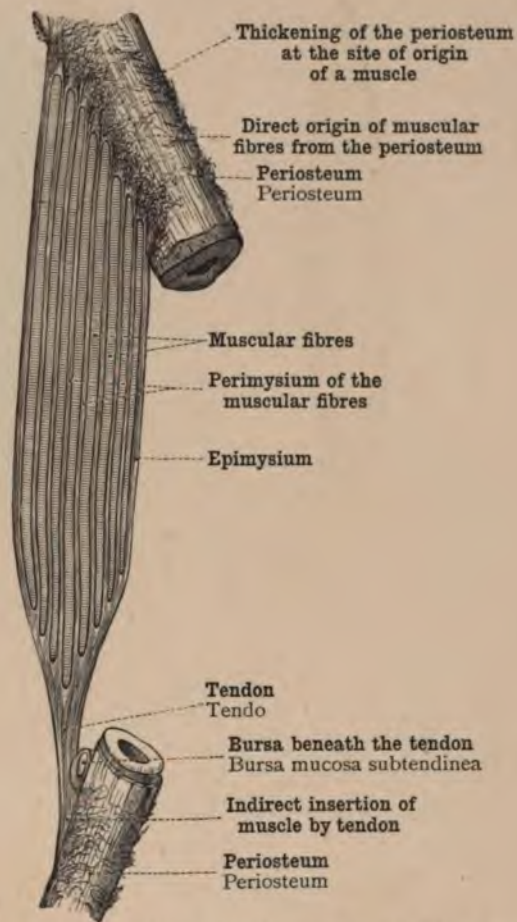


FIG. 495.—DIAGRAMMATIC REPRESENTATION OF THE RELATION OF THE PERIMYSIUM TO THE ORIGIN AND THE INSERTION OF THE MUSCLE (THE INSERTION IN THIS CASE BEING BY TENDON).



FIG. 496.—TRANSVERSE SECTION THROUGH THE SARTORIUS MUSCLE OF A NEW-BORN INFANT, SHOWING THE PRIMARY AND SECONDARY FASCICULI OF MUSCULAR FIBRES.

Structure of Muscle.



FIG. 497.—MUSCULUS FUSIFORMIS; FUSIFORM MUSCLE.



FIG. 498.—MUSCULUS UNIPENNATUS; PENNIFORM MUSCLE.



FIG. 499.—MUSCULUS BIPENNATUS; BIPENNIFORM MUSCLE.

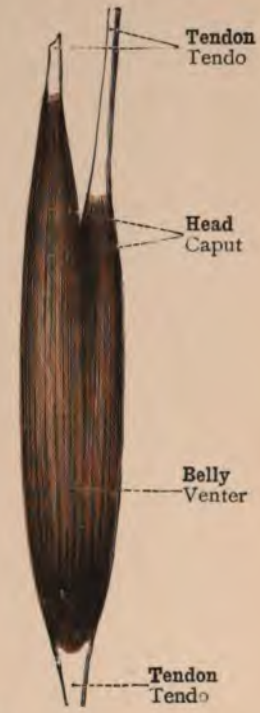


FIG. 500.—MUSCULUS BICEPS; DOUBLE-HEADED MUSCLE.



FIG. 501.—BROAD MUSCLE.

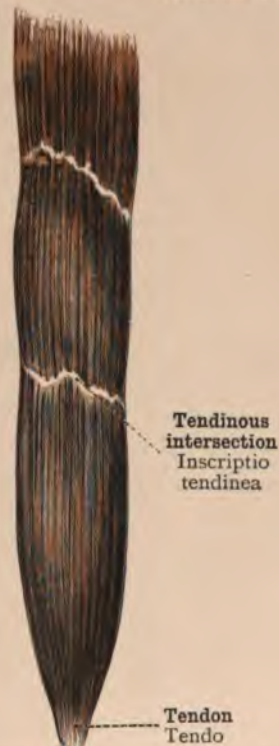


FIG. 502.—STRAP-SHAPED MUSCLE.

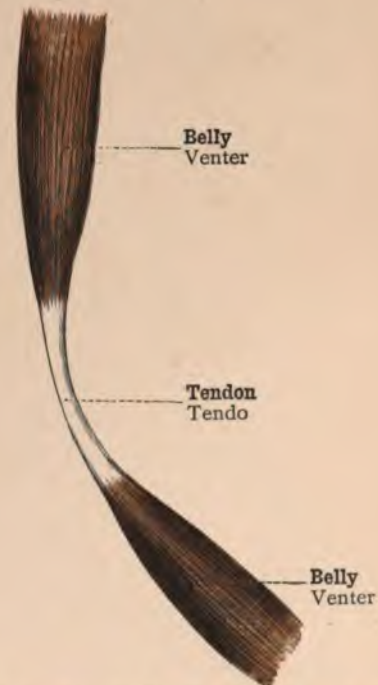


FIG. 503.—MUSCULUS BIVENTER; DIGASTRIC MUSCLE.

The Principal Muscular Forms.

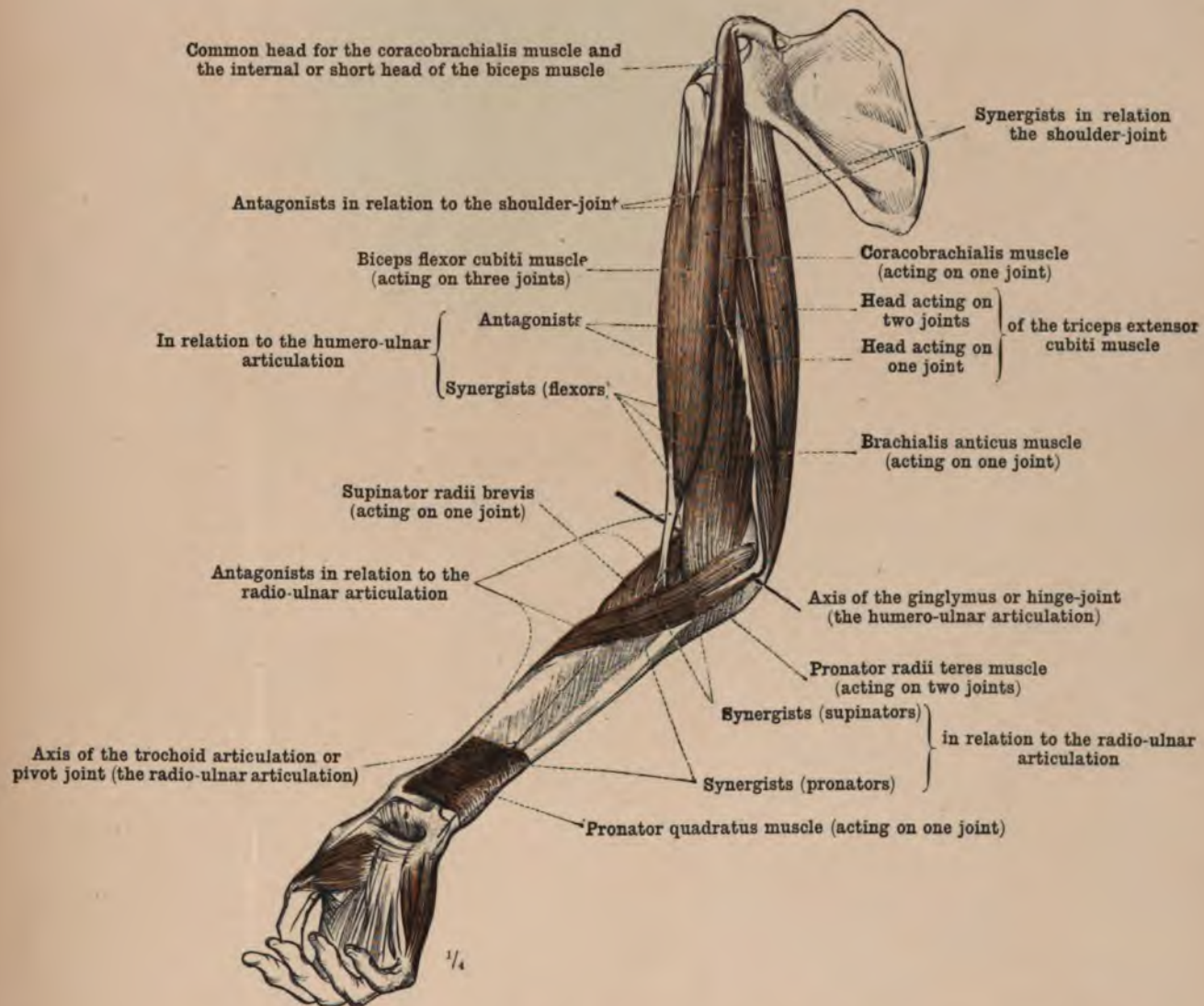


FIG. 504.—THE MUSCLES OF THE ARM AND THE PRONATOR AND SUPINATOR MUSCLES OF THE FOREARM AS EXAMPLES OF THE RELATION OF VARIOUS MUSCLES TO ONE OR SEVERAL JOINTS, AND ALSO OF THE SYNERGISTIC OR ANTAGONISTIC ACTION OF MUSCLES IN RELATION TO A PARTICULAR JOINT.

Relation of the Muscles to the Joints.

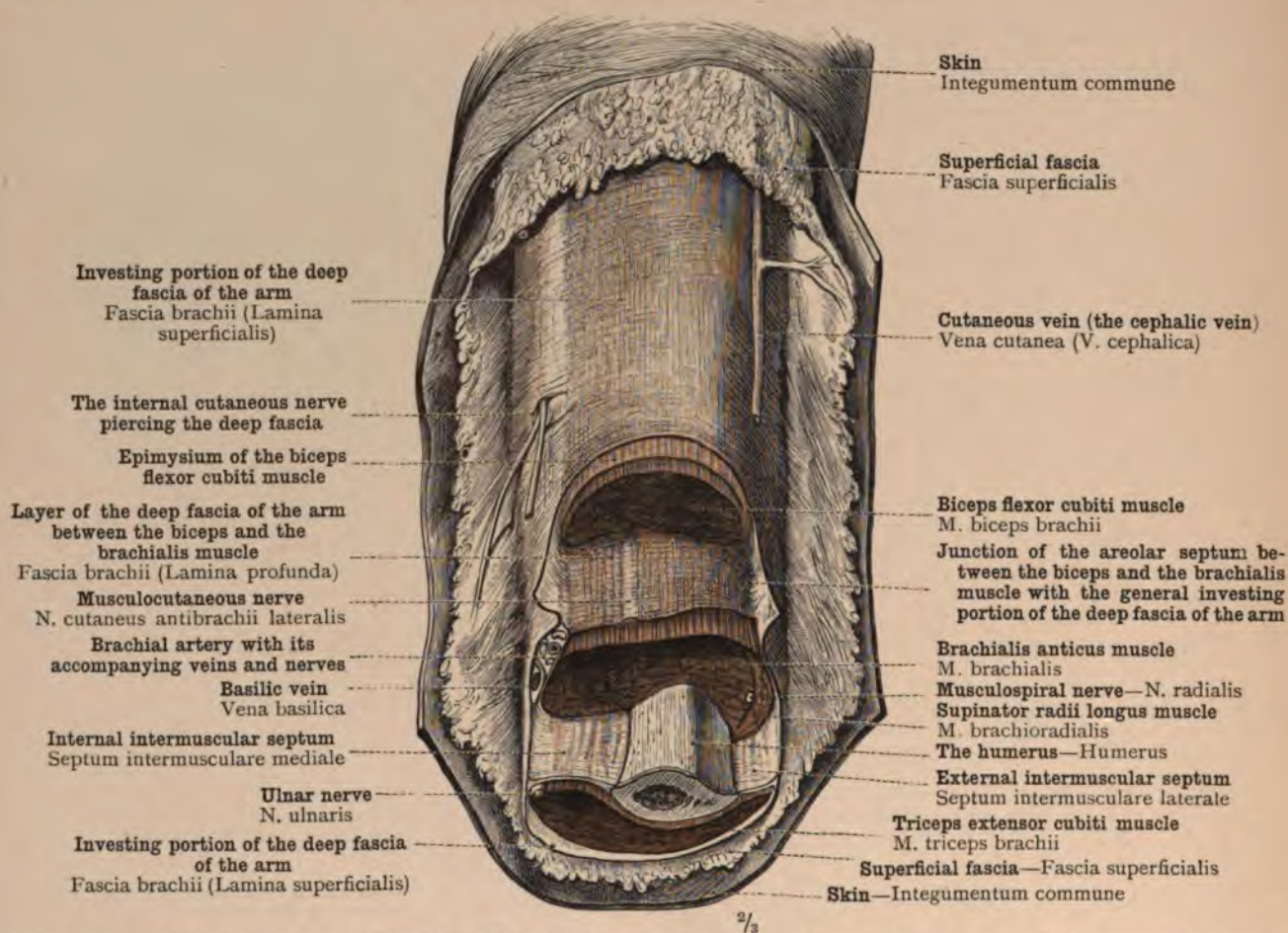


FIG. 505.—APONEUROSIS OR FASCIA. THE RELATION OF THE DEEP FASCIA TO THE VARIOUS GROUPS OF MUSCLES AND TO THE BONE. THE INTERMUSCULAR SEPTA. THE SUPERFICIAL FASCIA. (FASCIA OF THE RIGHT ARM.)

The individual muscles with their investing fascia in the lower third of the arm have been divided transversely at varying levels.

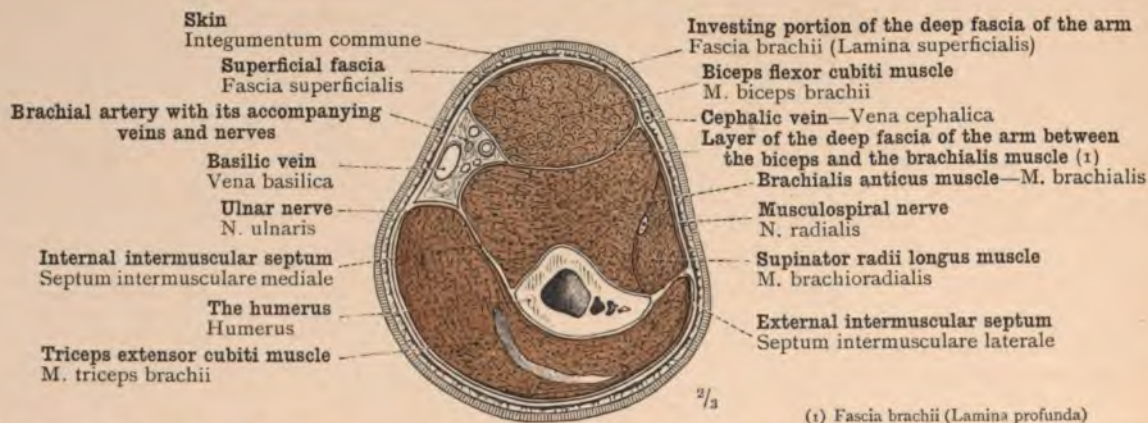
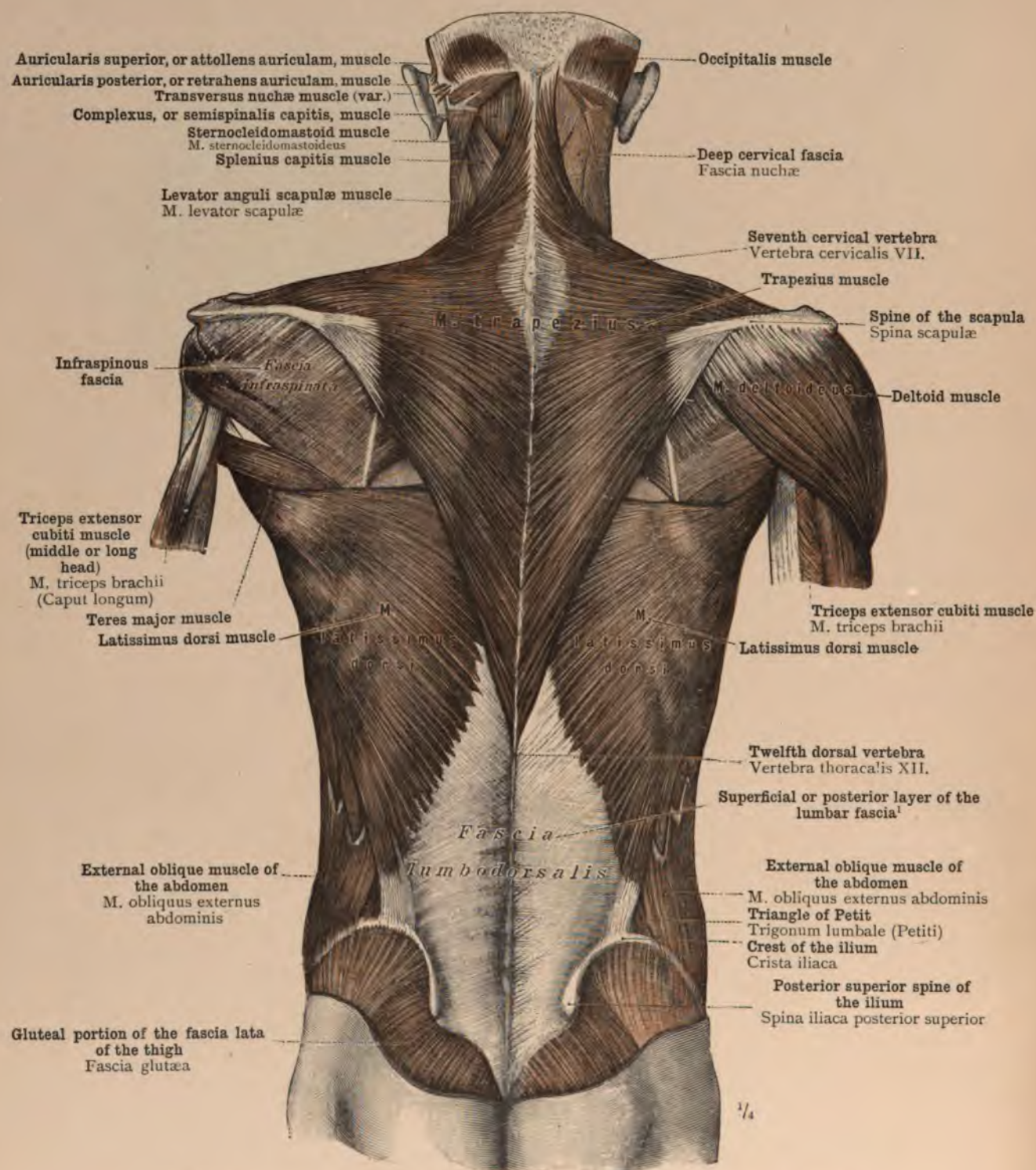


FIG. 506.—THE GROUPING OF THE MUSCLES OF THE ARM, AND THE RELATION OF THESE MUSCLES TO THE DEEP FASCIA. (TRANSVERSE SECTION THROUGH THE RIGHT UPPER ARM IN THE NEIGHBOURHOOD OF ITS DISTAL EXTREMITY; PROXIMAL CUT SURFACE. SEMI-DIAGRAMMATIC.)

Aponeurosis or Fascia.

MUSCULI TRUNCI
THE MUSCLES OF THE TRUNK



¹ See notes to pp. 267 and 285 for an account of the different portions of the lumbar fascia.

FIG. 507.—FIRST (SUPERFICIAL) LAYER OF THE MUSCLES OF THE BACK (WIDE MUSCLES OF THE BACK): THE TRAPEZIUS MUSCLE (CUCULLARIS); THE LATISSIMUS DORSI MUSCLE. SUPERFICIAL OR POSTERIOR LAYER OF THE LUMBAR FASCIA.

Musculi dorsi—Muscles of the back.

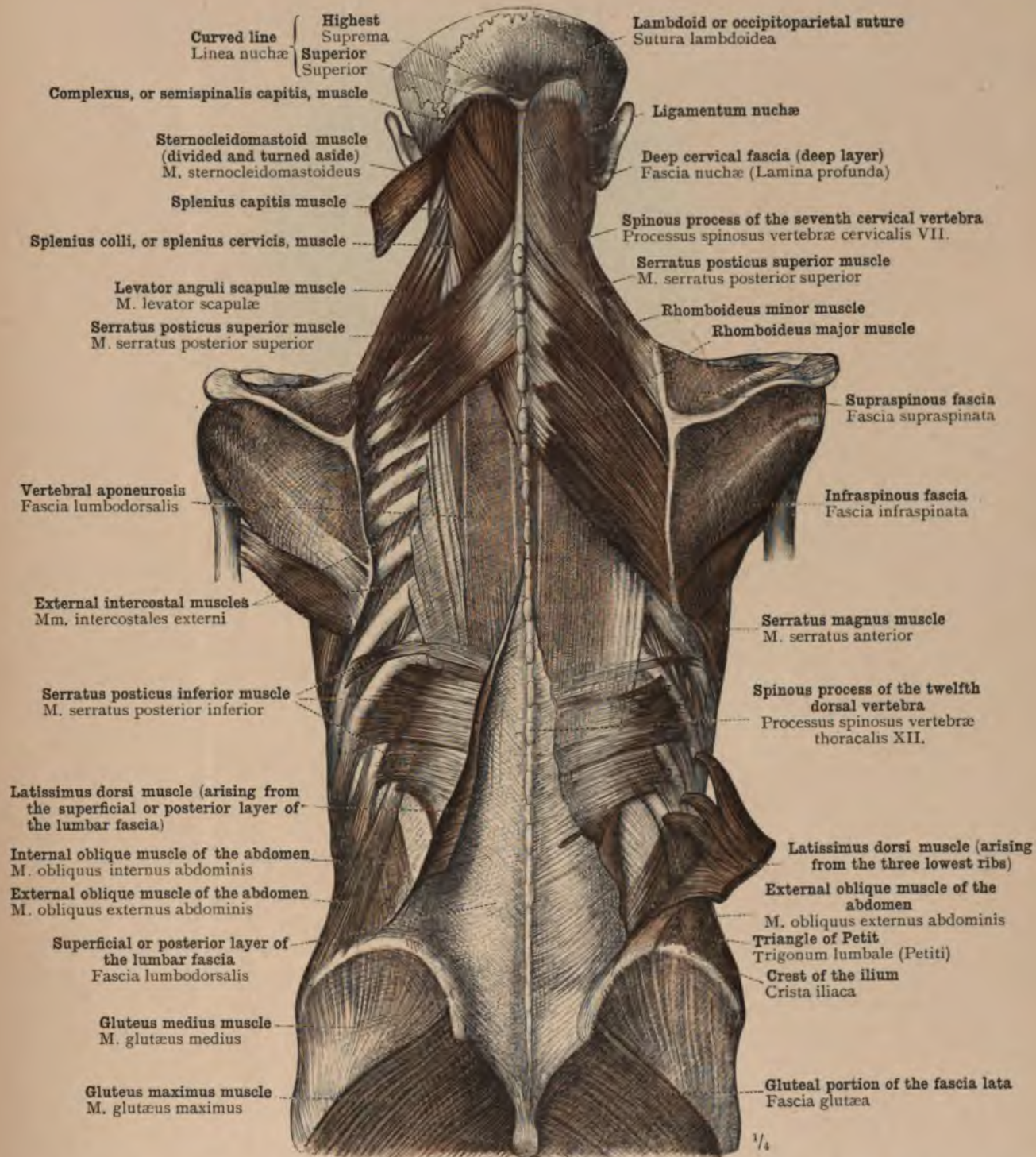
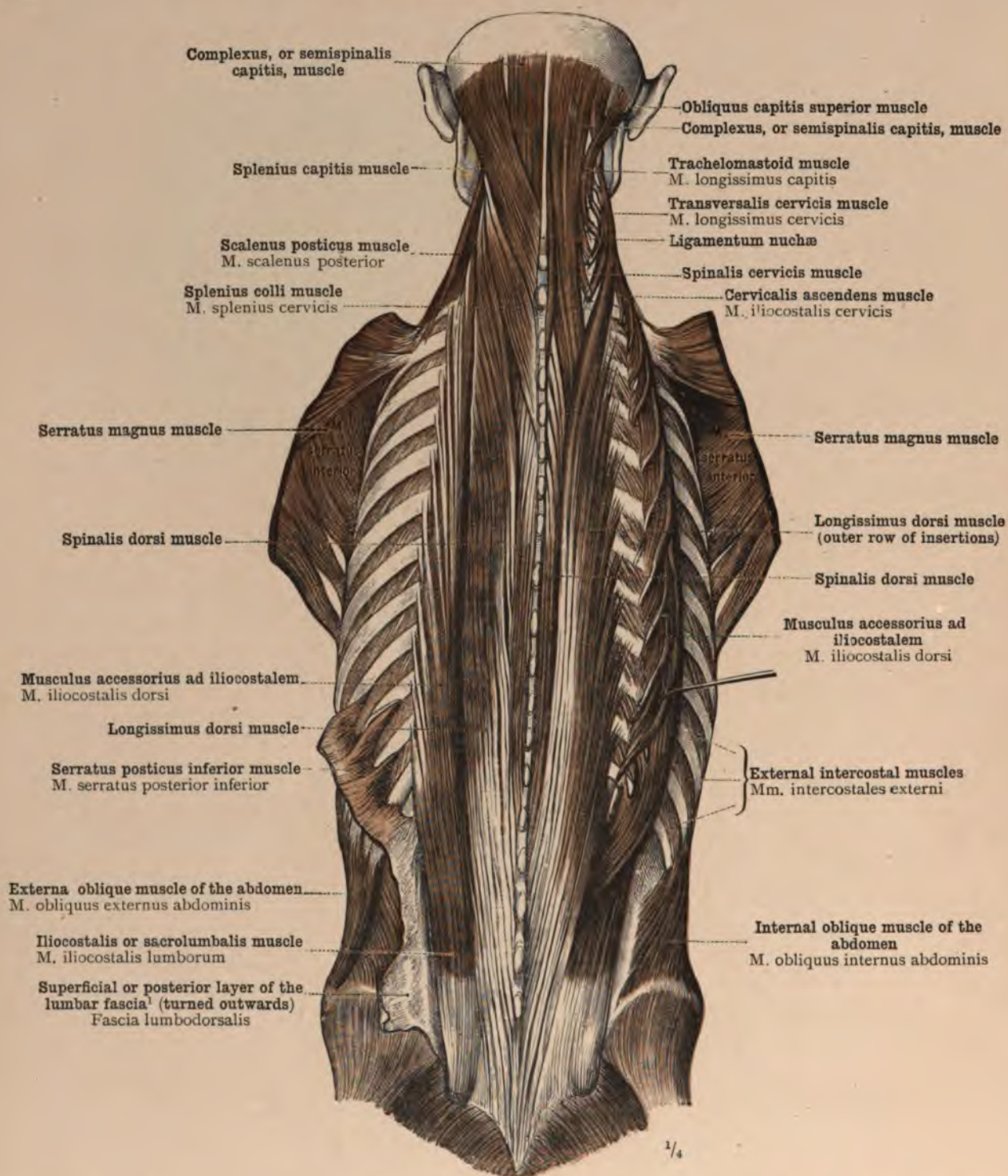


FIG. 508.—SECOND LAYER OF THE MUSCLES OF THE BACK (WIDE MUSCLES OF THE BACK), SHOWN BY THE REMOVAL OF THE LATISSIMUS DORSI AND THE TRAPEZIUS MUSCLES; ON THE LEFT SIDE, THE RHOMBOIDEUS MAJOR AND RHOMBOIDEUS MINOR MUSCLES HAVE ALSO BEEN REMOVED.

The muscles of the second layer are: Rhomboideus major, rhomboideus minor, serratus posticus superior, serratus posticus inferior, and levator anguli scapulæ. The superficial or posterior layer of the lumbar fascia,¹ by means of which the latissimus dorsi and the serratus posticus inferior muscles are attached to the spines of the vertebræ, and the vertebral aponeurosis, are also shown.

¹ The name of *lumbar fascia* is by some anatomists restricted to the deeper layers of this structure (see note to p. 285), and what we here call the *superficial or posterior layer of the lumbar fascia* is in that case either regarded as the *lower portion of the vertebral aponeurosis* (with which it is continuous), or else is termed the *aponeurosis of the latissimus dorsi muscle*.—Tn.



¹ See note to p. 267.

FIG. 509.—THIRD LAYER OF THE MUSCLES OF THE BACK (LONG MUSCLES OF THE BACK), SHOWN BY THE REMOVAL OF THE FIRST AND SECOND LAYERS OF MUSCLES AND OF THE SUPERFICIAL OR POSTERIOR LAYER OF THE LUMBAR FASCIA AND THE VERTEBRAL APONEUROSIS; ON THE RIGHT SIDE THE MUSCULUS ACCESSORIUS AD ILIOCOSTALEM HAS BEEN DRAWN OUTWARDS.

The muscles of the third layer are: The erector spinæ, consisting of the iliocostalis (sacrolumbalis) and the longissimus dorsi, with their prolongations upwards—accessorius, spinalis, and splenius muscles.

Musculi dorsi—Muscles of the back.



¹ See note to p. 267.

FIG. 510.—THE DIVISIONS OF THE ILIOCOSTALIS OR SACROLUMBALIS MUSCLE AND ITS ACCESSORY SLIPS OF ORIGIN, SHOWN BY THE REMOVAL OF PORTIONS OF THE MUSCLE. THE LEVATOR ANGULI SCAPULÆ, THE SPLENIUS CAPITIS, AND THE SPLENIUS COLLI MUSCLES. THE SERRATUS POSTICUS SUPERIOR AND THE SERRATUS POSTICUS INFERIOR MUSCLES.

The last-named muscle has, in respect of the width of its slips of insertion, a very different appearance from that shown in Fig. 508.

Musculi dorsi—Muscles of the back.

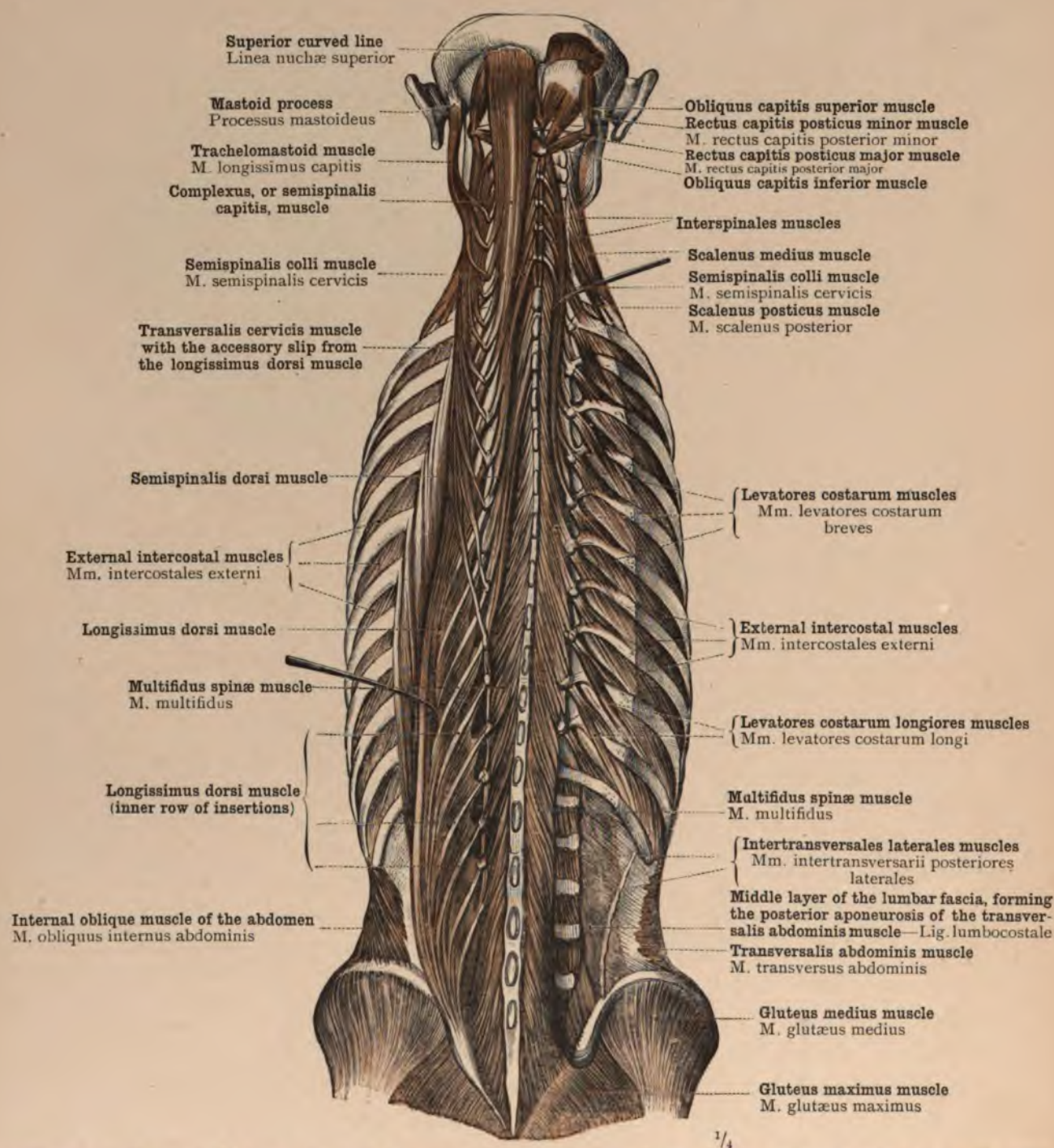


FIG. 511.—FOURTH LAYER OF THE MUSCLES OF THE BACK (LONG MUSCLES OF THE BACK); ON THE LEFT SIDE THE LONGISSIMUS DORSI AND THE TRANSVERSALIS CERVICIS HAVE BEEN DRAWN OUTWARDS, SHOWING THE CONNEXION BETWEEN THE TWO, AND THEIR ATTACHMENTS TO THE TRANSVERSE PROCESSES OF THE VERTEBRÆ; ON THE RIGHT SIDE THE ERECTOR SPINÆ MUSCLE HAS BEEN ENTIRELY REMOVED; THE SEMISPINALIS DORSI, SEMISPINALIS COLLI, SEMISPINALIS CAPITIS (COMPLEXUS), AND THE MULTIFIDUS SPINÆ MUSCLES MAKE UP THE FOURTH LAYER.

Regarding the insertion of the longissimus dorsi muscle into the lumbar vertebræ and the eleventh and twelfth ribs, see also Fig. 592.

Musculi dorsi—Muscles of the back.

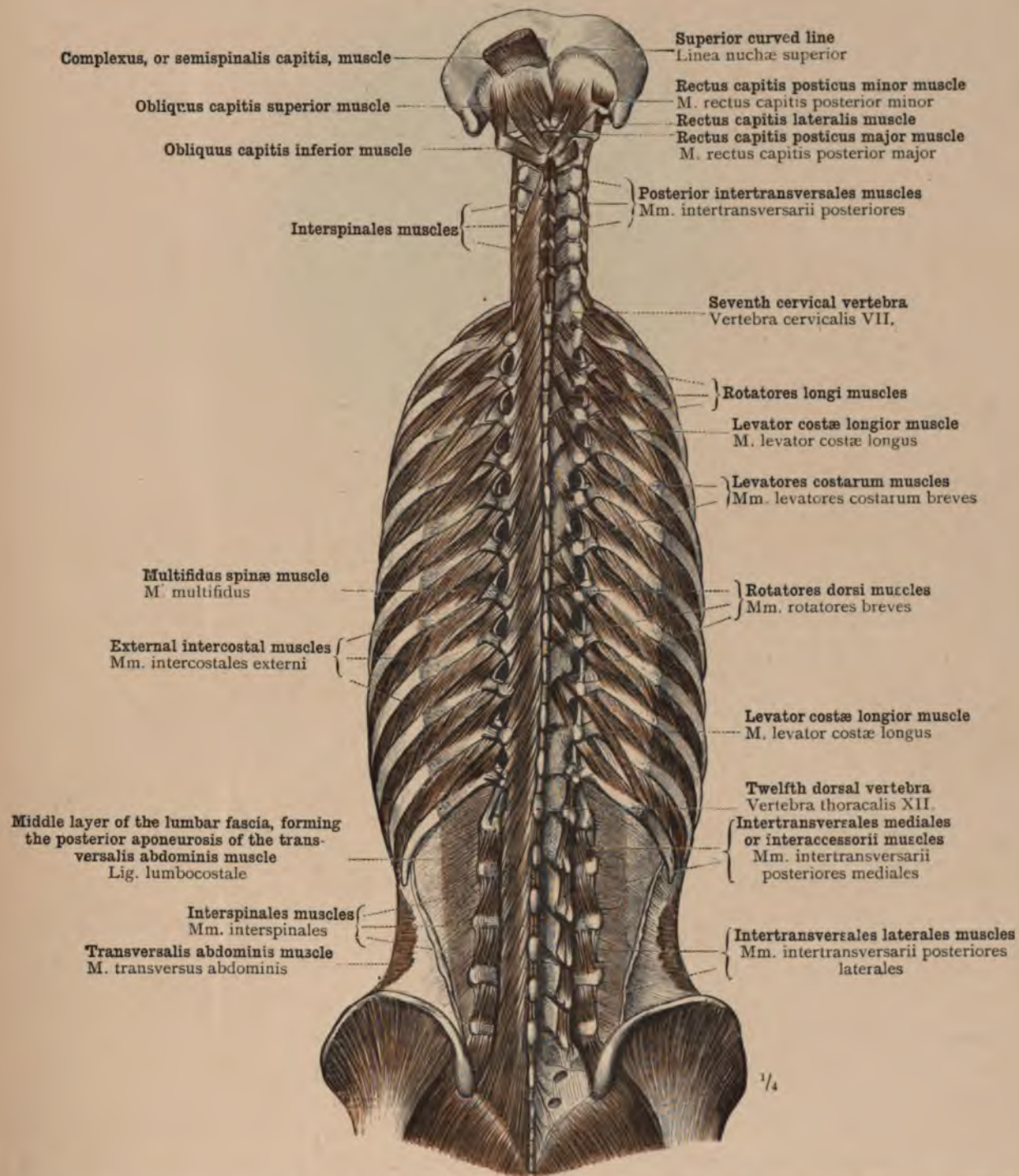


FIG. 512.—FIFTH (DEEPEST) LAYER OF THE MUSCLES OF THE BACK (SHORT MUSCLES OF THE BACK): ROTATORES LONGI, ROTATORES DORSI; INTERSPINALES; INTERTRANSVERSALES; LEVATORES COSTARUM.

The short posterior craniovertebral or suboccipital muscles also belong to the fifth layer of the muscles of the back.

Musculi dorsi—Muscles of the back.

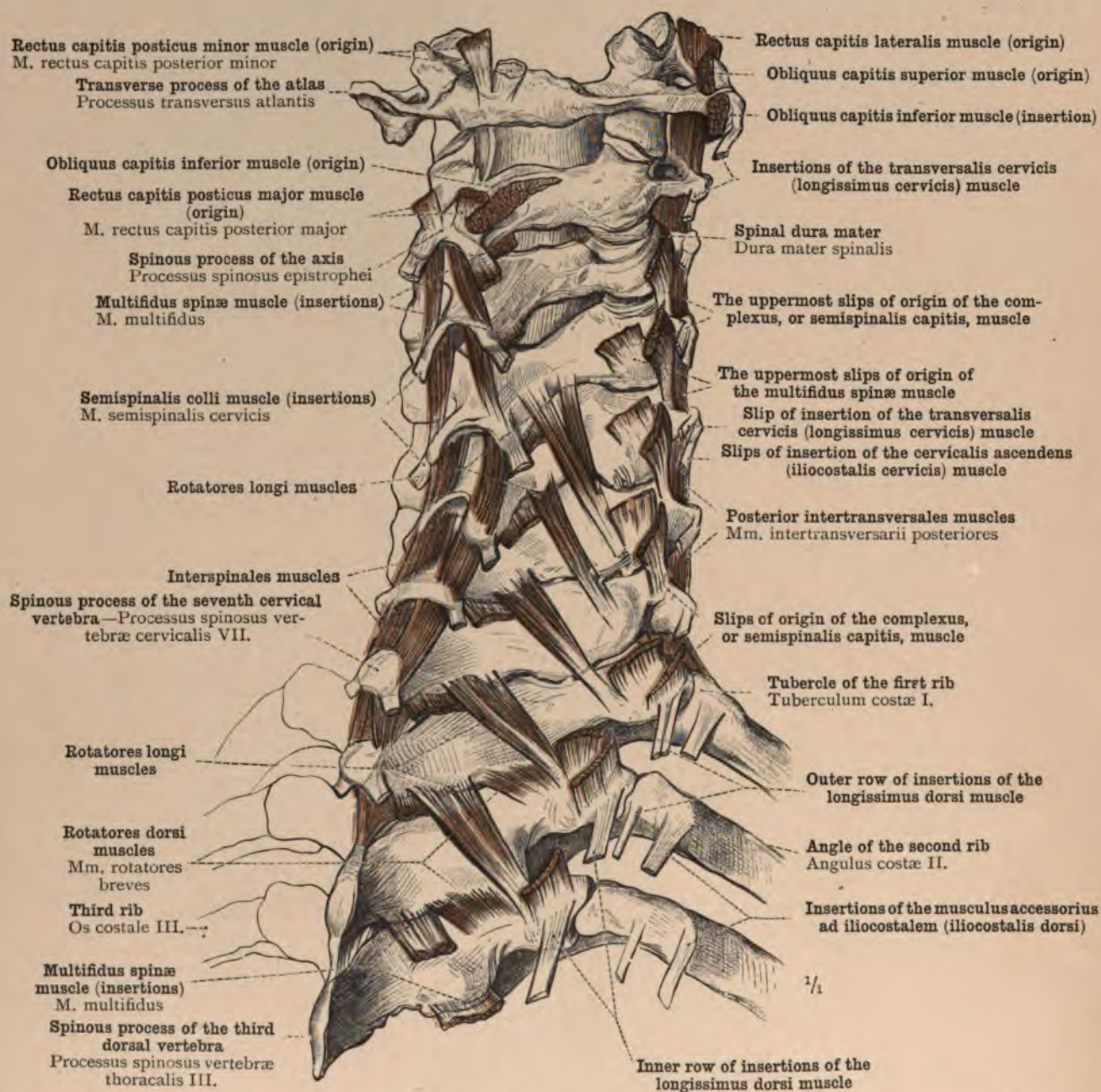


FIG. 513.—ORIGIN AND INSERTION OF THE LONG AND THE SHORT MUSCLES OF THE BACK IN THE CERVICAL AND UPPER DORSAL REGION. ORIGIN OF THE SHORT POSTERIOR CRANIO-VERTEBRAL OR SUBOCCIPITAL MUSCLES. INTERSPINALES MUSCLES. POSTERIOR INTERTRANSVERSALES MUSCLES. ROTATORES LONGI AND ROTATORES DORSI MUSCLES.

Musculi dorsi—Muscles of the back.

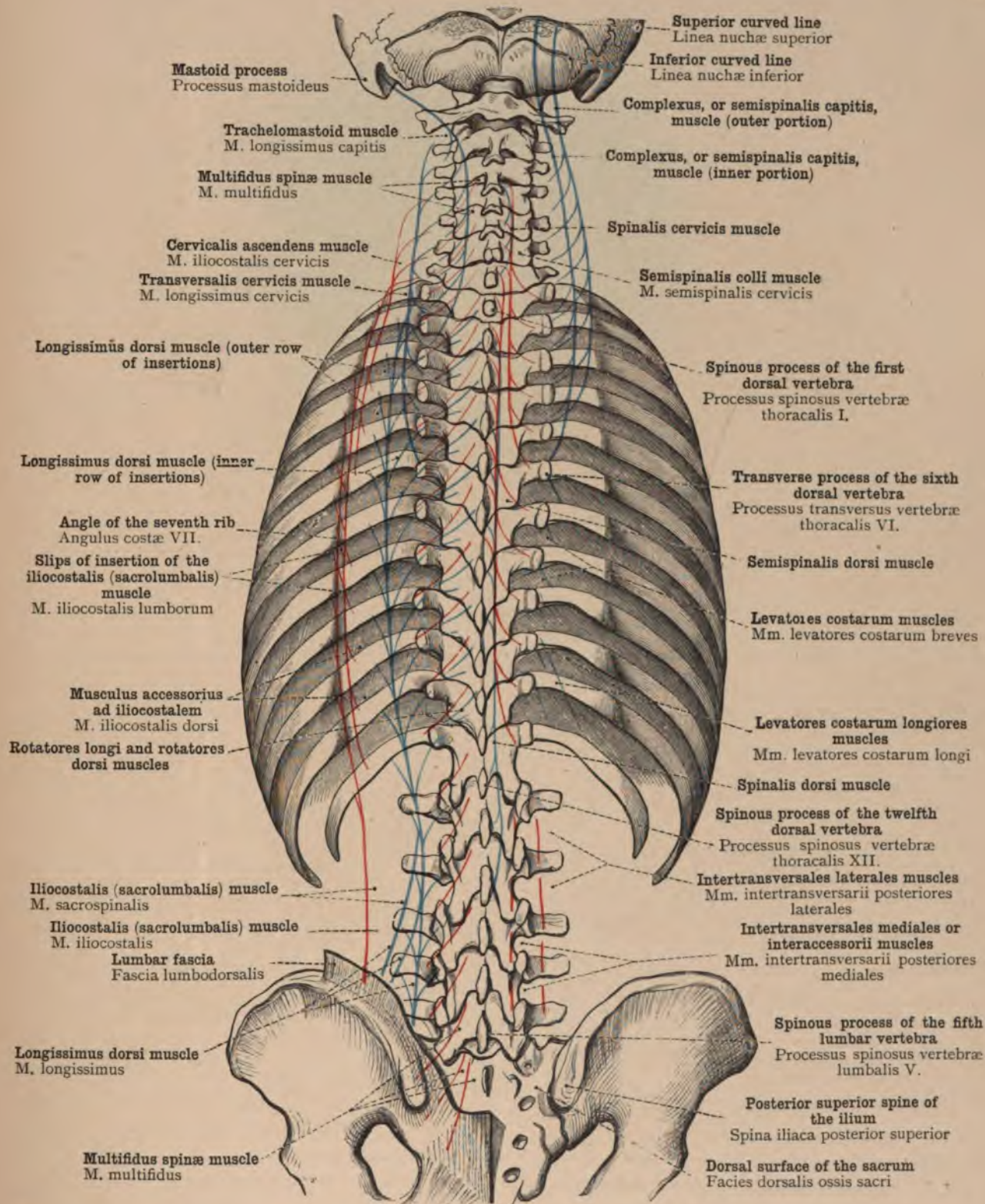


FIG. 514.—DIAGRAM SHOWING THE ORIGINS AND INSERTIONS OF THE LONG AND THE SHORT MUSCLES OF THE BACK.

Musculi dorsi—Muscles of the back.

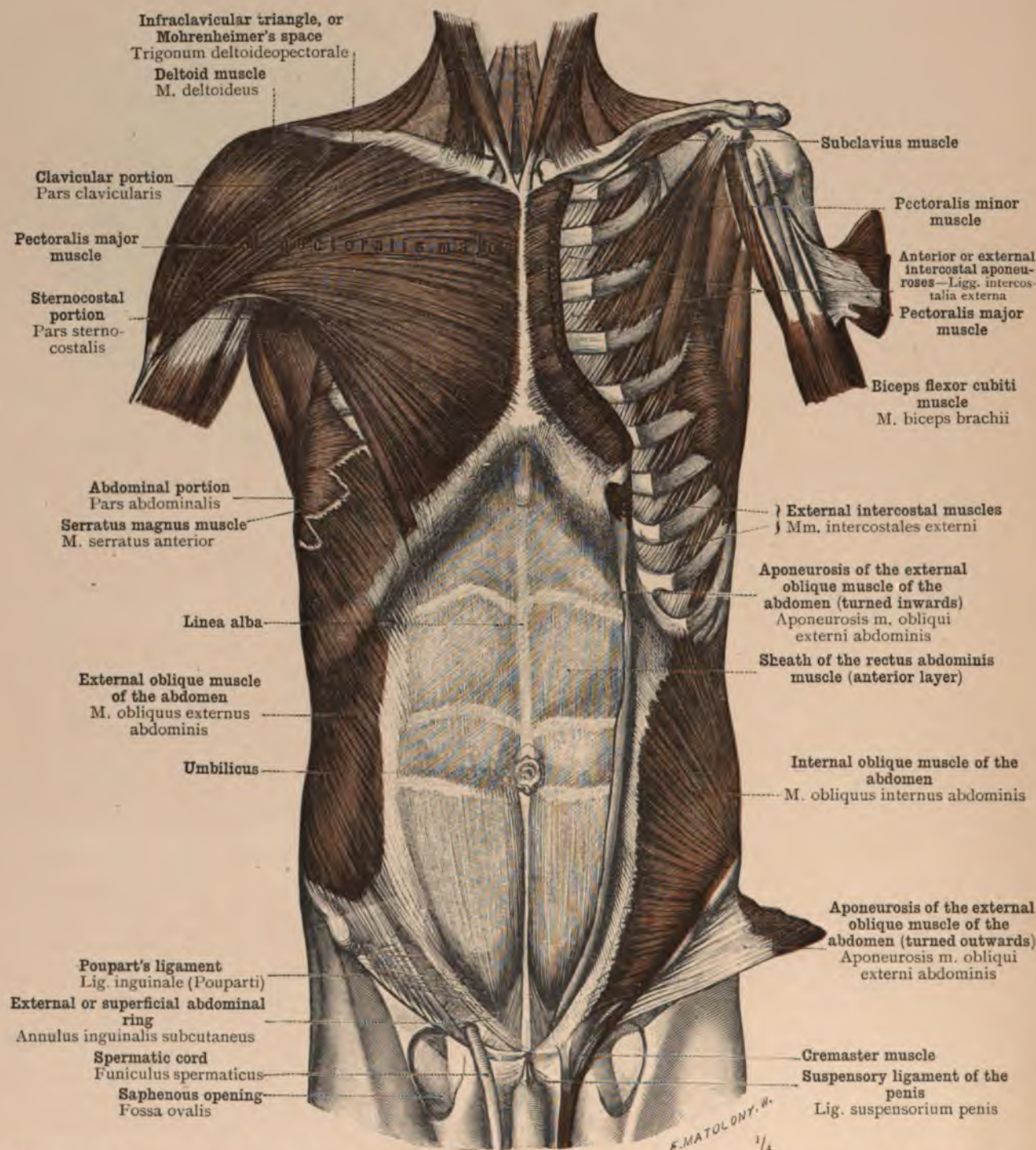
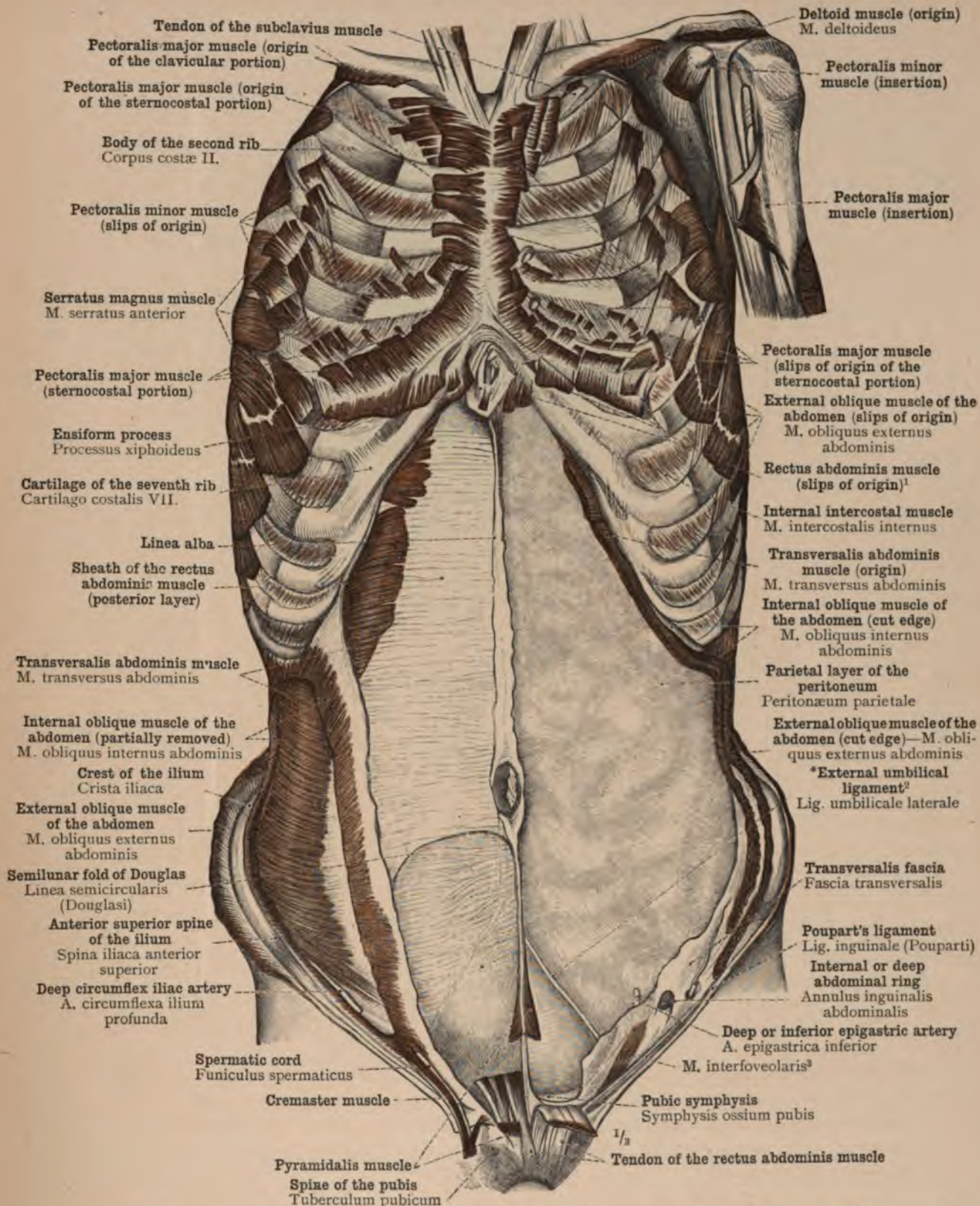


FIG. 515.—THE THORACIC AND ABDOMINAL MUSCLES ARE SHOWN, ON THE RIGHT SIDE THE MOST SUPERFICIAL LAYER, AND ON THE LEFT SIDE THE LAYER IMMEDIATELY BENEATH THIS. PECTORALIS MAJOR AND PECTORALIS MINOR MUSCLES; SUBCLAVIUS MUSCLE; EXTERNAL AND INTERNAL OBLIQUE MUSCLES OF THE ABDOMEN.

Musculi thoracis et abdominis—Muscles of the thorax and abdomen.



¹ By English anatomists the inferior or pubic attachment of the rectus abdominis is regarded as the *origin* of that muscle, and the superior or costal attachment as its *insertion*.—Tr.

² See pages 386 and 387.

³ A small bundle of muscular fibres in the posterior wall of the inguinal canal, running parallel with, but internal to, the spermatic cord, and anterior or superficial to that portion of the conjoined tendon known as the *ligamentum interfoveolare* or *ligament of Hesselbach*. This muscular slip is described neither by Quain nor by Macalister. It is figured on a larger scale on p. 385, Section III., of the present work.—Tr.

FIG. 516.—ORIGINS AND INSERTIONS OF THE THORACIC AND ABDOMINAL MUSCLES.

Musculi thoracis et abdominis—Muscles of the thorax and abdomen.

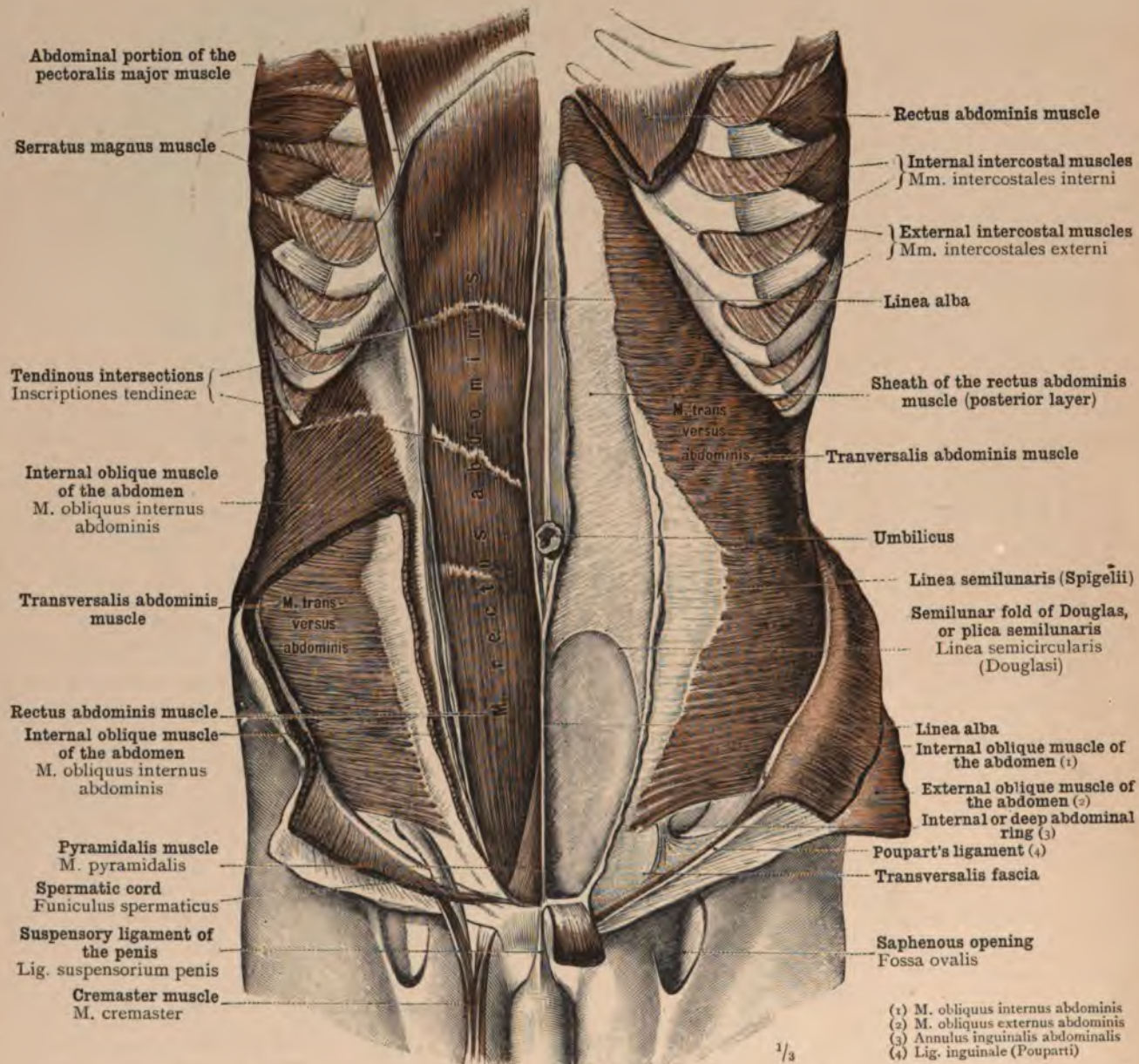


FIG. 517.—THE ARRANGEMENT IN LAYERS OF THE ABDOMINAL MUSCLES AS DISPLAYED BY PARTIAL REMOVAL OF THE SUPERFICIAL LAYERS. THE RECTUS ABDOMINIS MUSCLE OF THE LEFT SIDE HAVING BEEN CUT AWAY, THE POSTERIOR LAYER OF THE SHEATH OF THAT MUSCLE IS EXPOSED. RECTUS ABDOMINIS MUSCLE; TRANSVERSALIS ABDOMINIS MUSCLE; PYRAMIDALIS MUSCLE.

Musculi abdominis—Muscles of the abdomen.

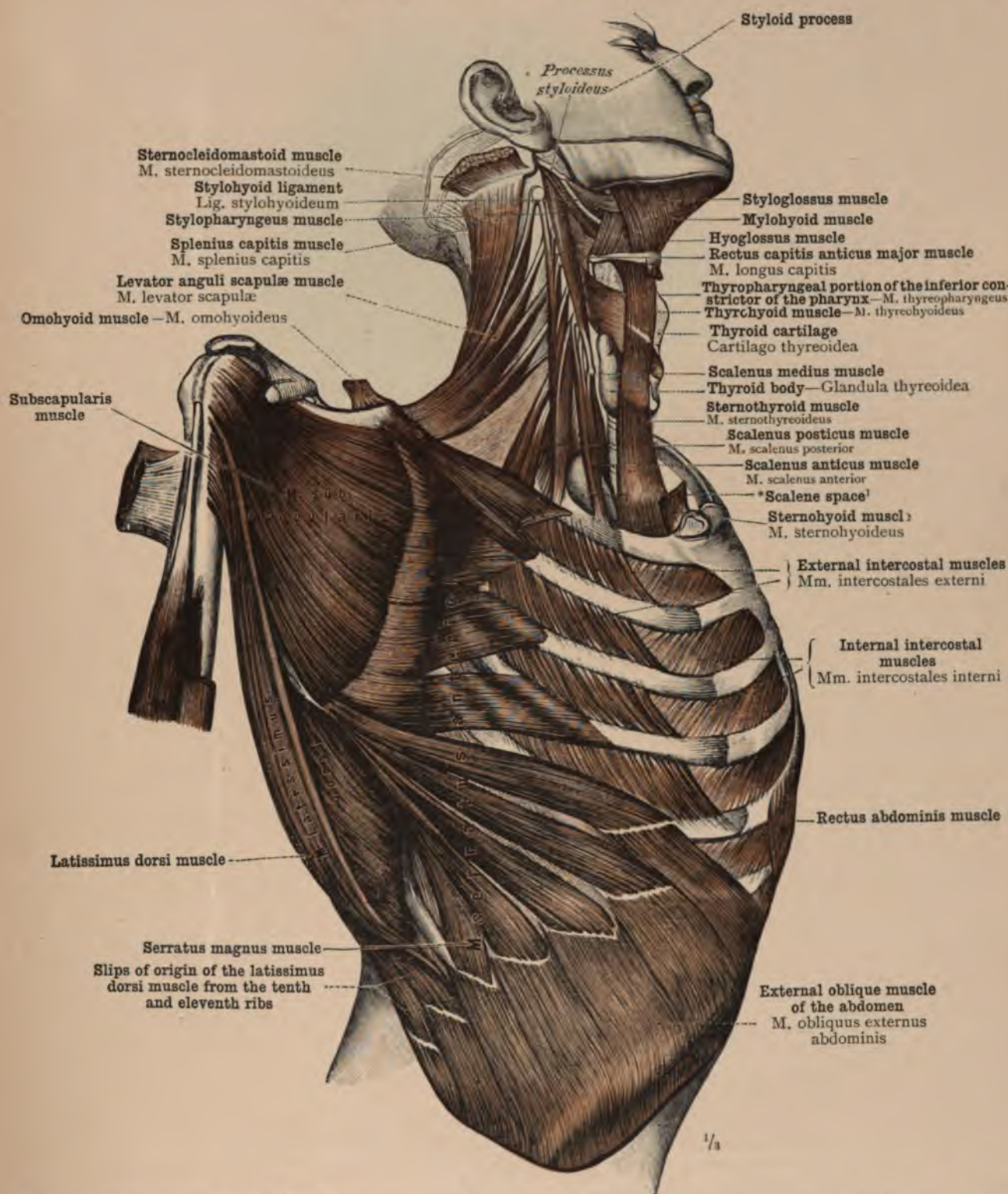
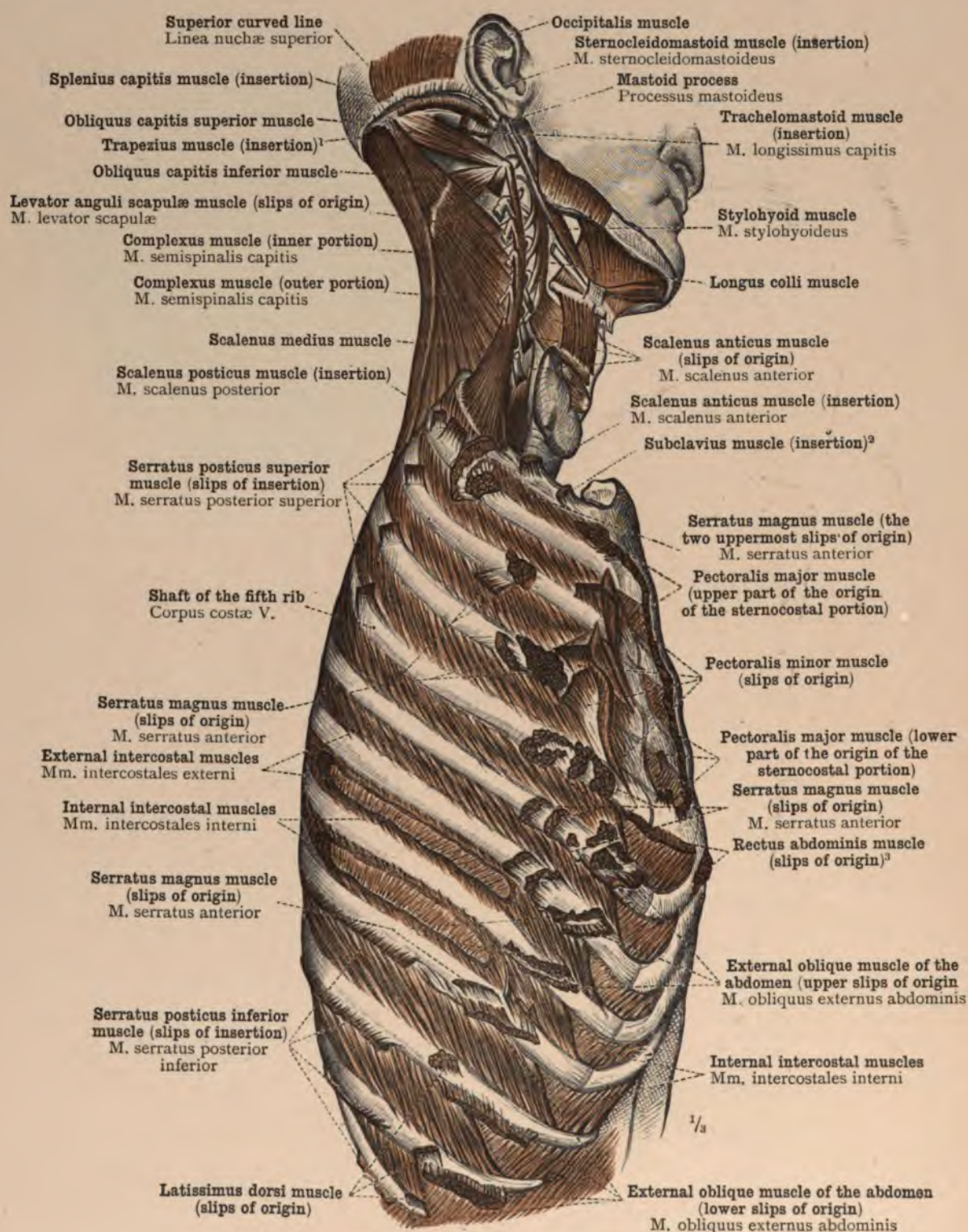


FIG. 518.—SERRATUS MAGNUS MUSCLE. LATISSIMUS DORSI AND SUBSCAPULARIS MUSCLE. THE THREE SCALENE MUSCLES AND THE *SCALENE SPACE.¹ LEVATOR ANGULI SCAPULAE MUSCLE.

¹ This is a triangular space, the base of which is formed by the upper surface of the first rib, the anterior wall by the scalenus anticus muscle, and the posterior wall by the scalenus medius muscle. It is occupied by the brachial plexus and the second part of the subclavian artery.—T_W.

Musculi thoracis—Muscles of the thorax.



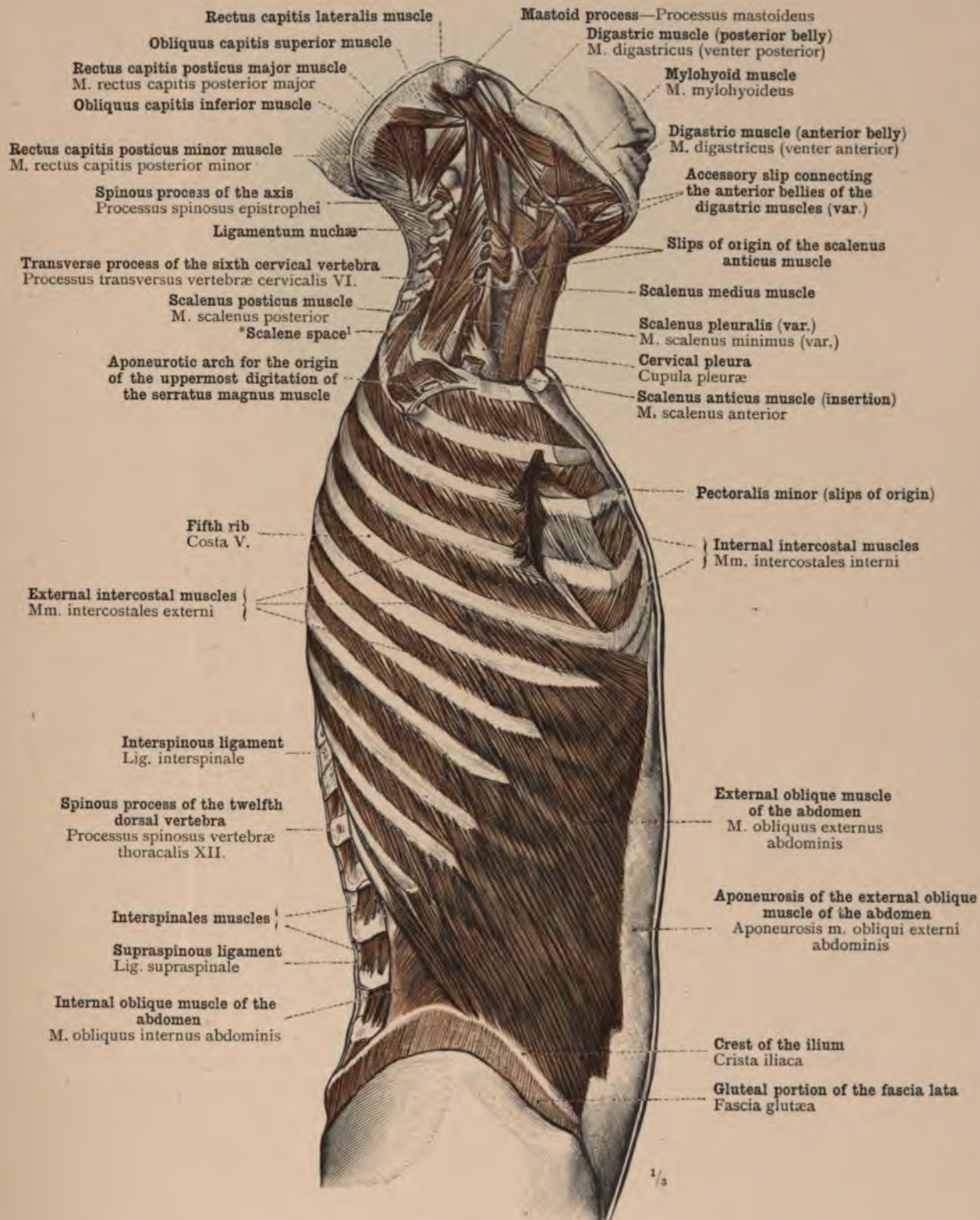
¹ Origin according to English anatomists.—Tr.

² English anatomists regard this as the origin of the subclavius muscle.—Tr.

³ See note ¹ to p. 275.

FIG. 519.—ORIGINS AND INSERTIONS OF THE MUSCLES ON THE ANTERIOR AND LATERAL WALLS OF THE THORAX. SEEN FROM THE RIGHT SIDE.

Musculi thoracis et abdominis—Muscles of the thorax and abdomen.



¹ See note to p. 277.

FIG. 520.—MUSCULI INTERCOSTALES EXTERNI, THE EXTERNAL INTERCOSTAL MUSCLES; MUSCULUS OBLIQUUS EXTERNUS ABDOMINIS, THE EXTERNAL OBLIQUE MUSCLE OF THE ABDOMEN; THE SCALENE MUSCLES, WITH THE ANOMALOUS SCALENUS MINIMUS OR SCALENUS PLEURALIS.

Musculi thoracis et abdominis—Muscles of the thorax and abdomen.

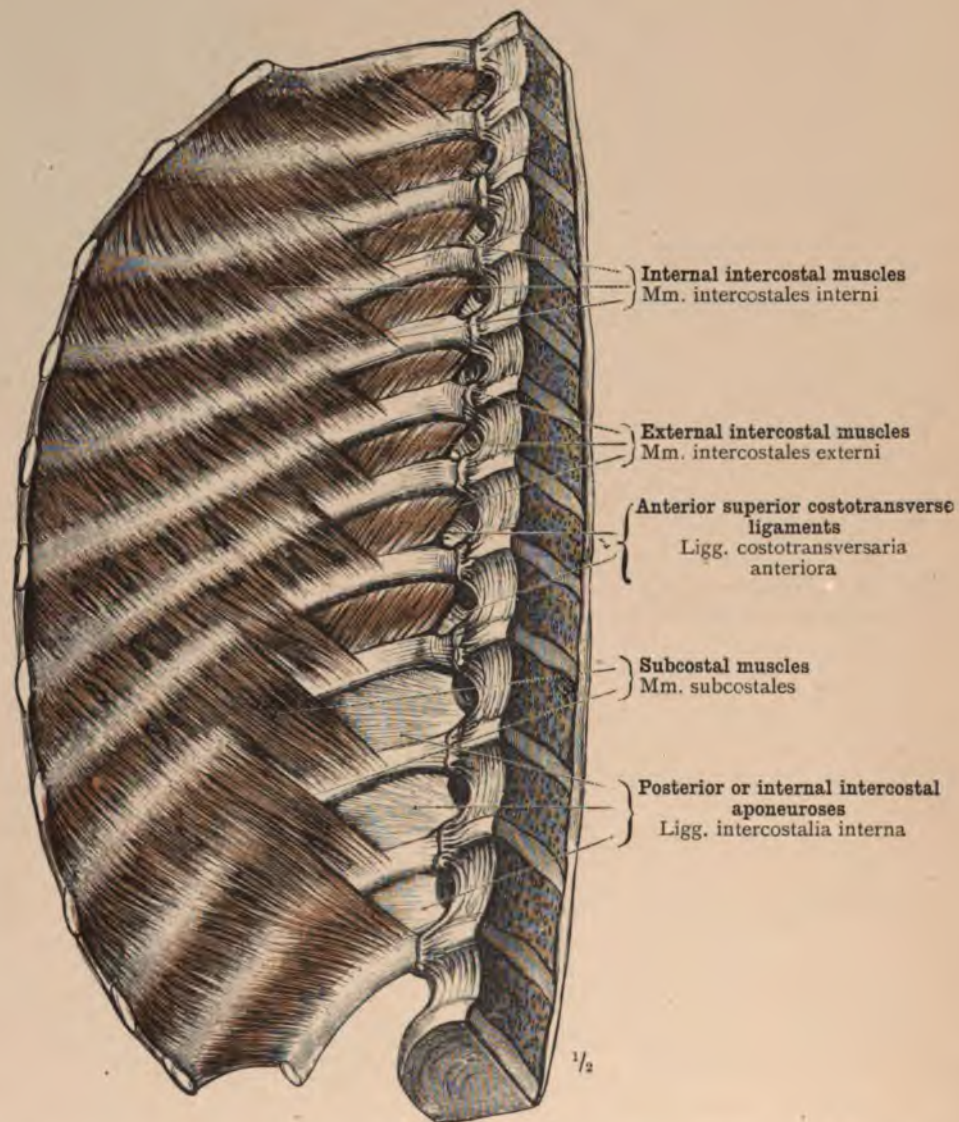


FIG. 521.—THE MUSCLES ON THE INNER SURFACE OF THE LATERAL WALL OF THE THORAX, SHOWN ON THE RIGHT SIDE OF THE BODY, THE DIAPHRAGM HAVING BEEN REMOVED: MUSCULI INTERCOSTALES INTERNI INTERNAL INTERCOSTAL MUSCLES; MUSCULI SUBCOSTALES, SUBCOSTAL MUSCLES.

Musculi thoracis—Muscles of the thorax.

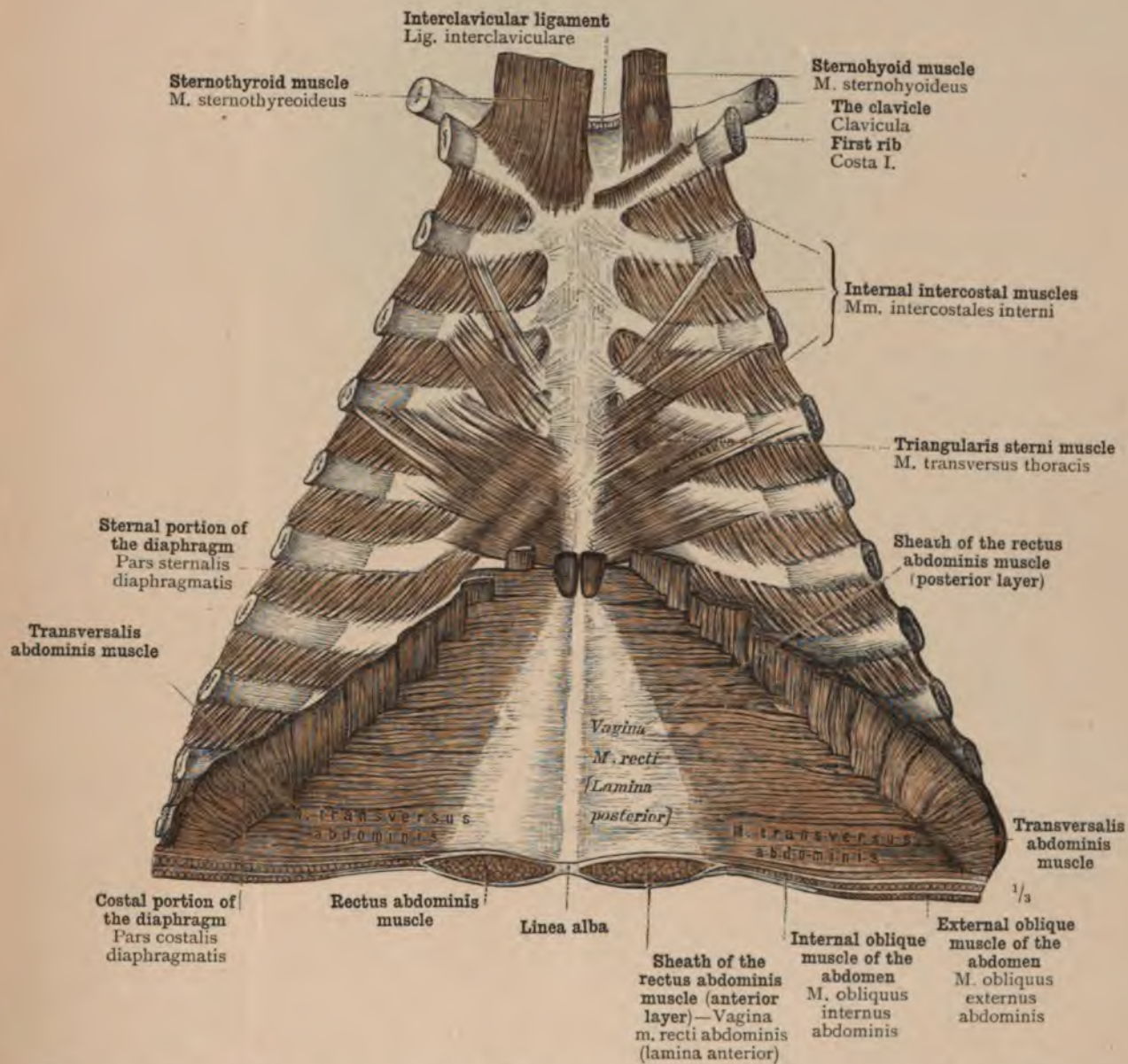


FIG. 522.—THE MUSCLES ON THE INNER SURFACE OF THE ANTERIOR WALL OF THE THORAX.

The slips of origin of the diaphragm from the costal cartilages and the ensiform process have been retained, in order to show their relation to the slips of origin of the transversalis abdominis muscle. The anterior wall of the abdomen has been divided horizontally at the level of the anterior extremities of the tenth pair of ribs to show the relation of the anterior aponeuroses of the external oblique, internal oblique, and transversalis muscles of the abdomen to the sheath of the rectus muscle, and to display the two layers of this sheath. The transversus thoracis or triangularis sterni muscle and the origins of the sternohyoid and sternothyroid muscles are also shown.

Musculi thoracis et abdominis—Muscles of the thorax and abdomen.

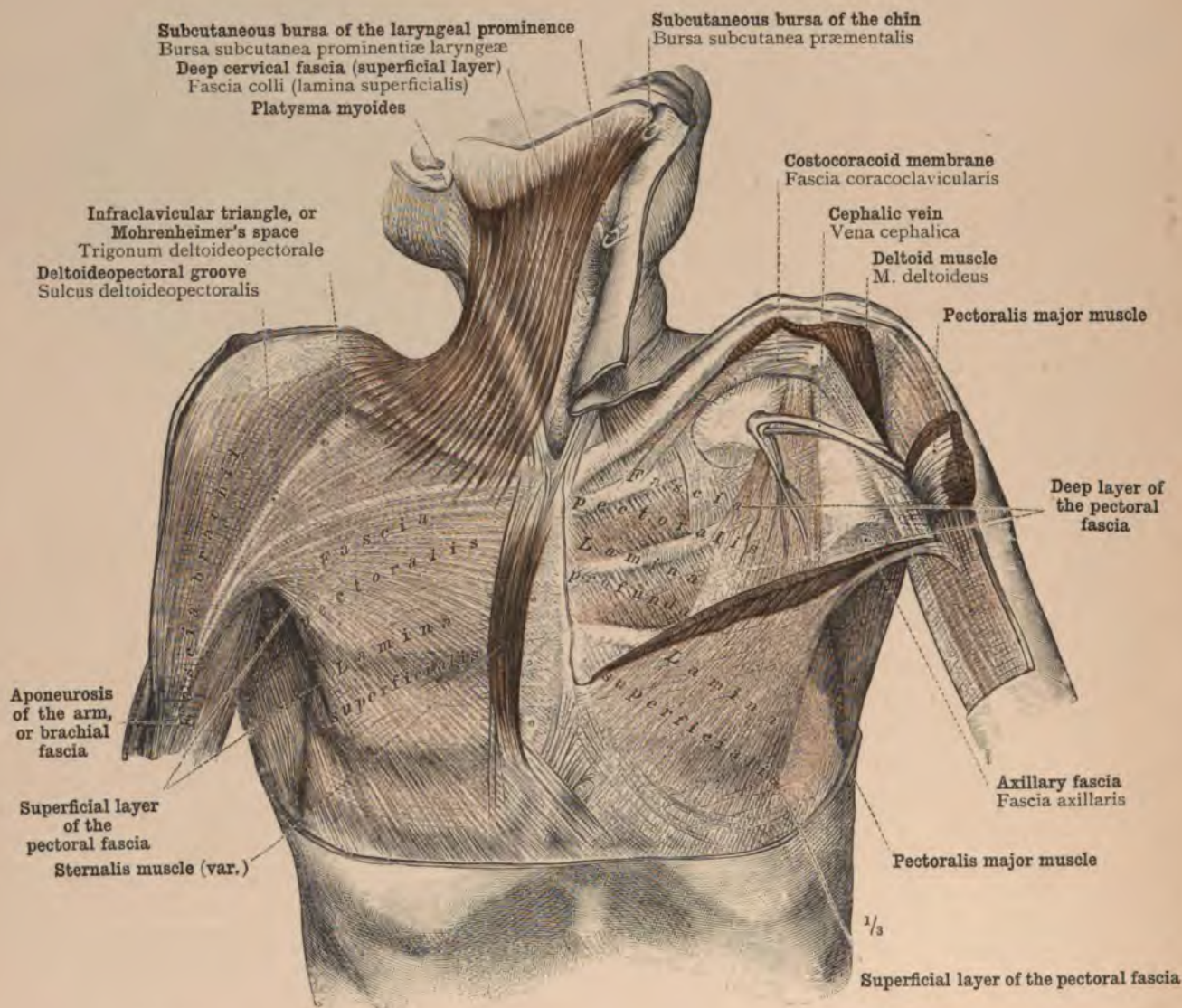


FIG. 523.—THE FASCIA OF THE ANTERIOR WALL OF THE THORAX, FASCIA PECTORALIS, THE PECTORAL FASCIA, AND ITS CONNEXIONS WITH THE FASCIAE OF THE ADJOINING REGIONS OF THE BODY. THE ANOMALOUS STERNALIS MUSCLE.

On the right side of the body, the skin and the superficial fascia having been removed, the superficial layer of the pectoral fascia is displayed, and its continuity with the aponeurosis of the arm is shown; on the left side, the greater part of the pectoralis major muscle has been removed, in order to display the deep layer of the pectoral fascia, with its specialized band, the costocoracoid membrane, and to show the continuity of this deep layer with the axillary fascia.

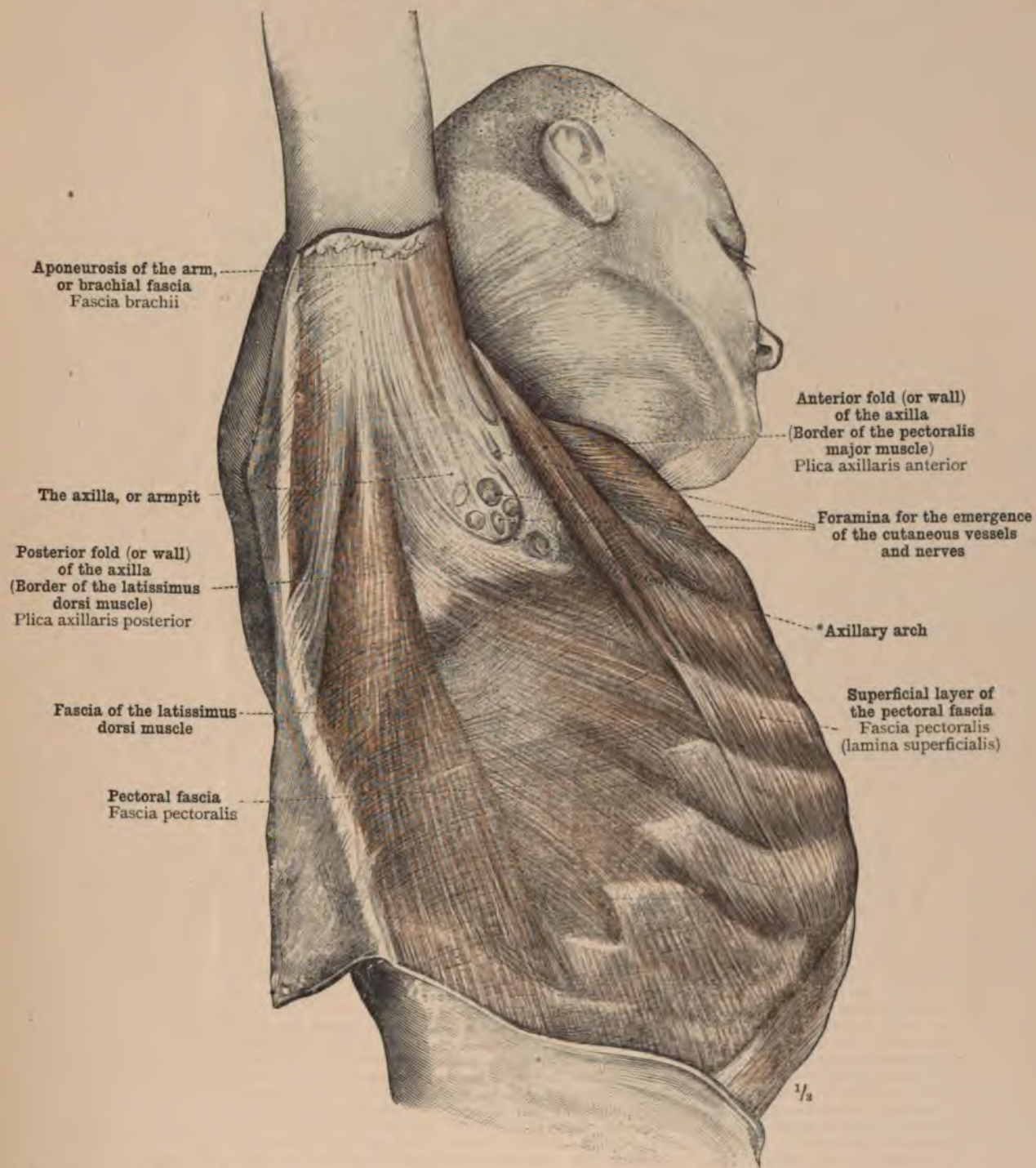


FIG. 524.—THE AXILLA WITH THE ANTERIOR AND POSTERIOR AXILLARY FOLDS, PLICA AXILLARIS ANTERIOR ET PLICA AXILLARIS POSTERIOR. FASCIA AXILLARIS, THE AXILLARY FASCIA, WITH THE *AXILLARY ARCH OF LANGER.

The axillary fascia forms the base or inferior boundary of the axillary fossa. The cutaneous vessels and nerves have been removed.

Musculi thoracis—Muscles of the thorax.

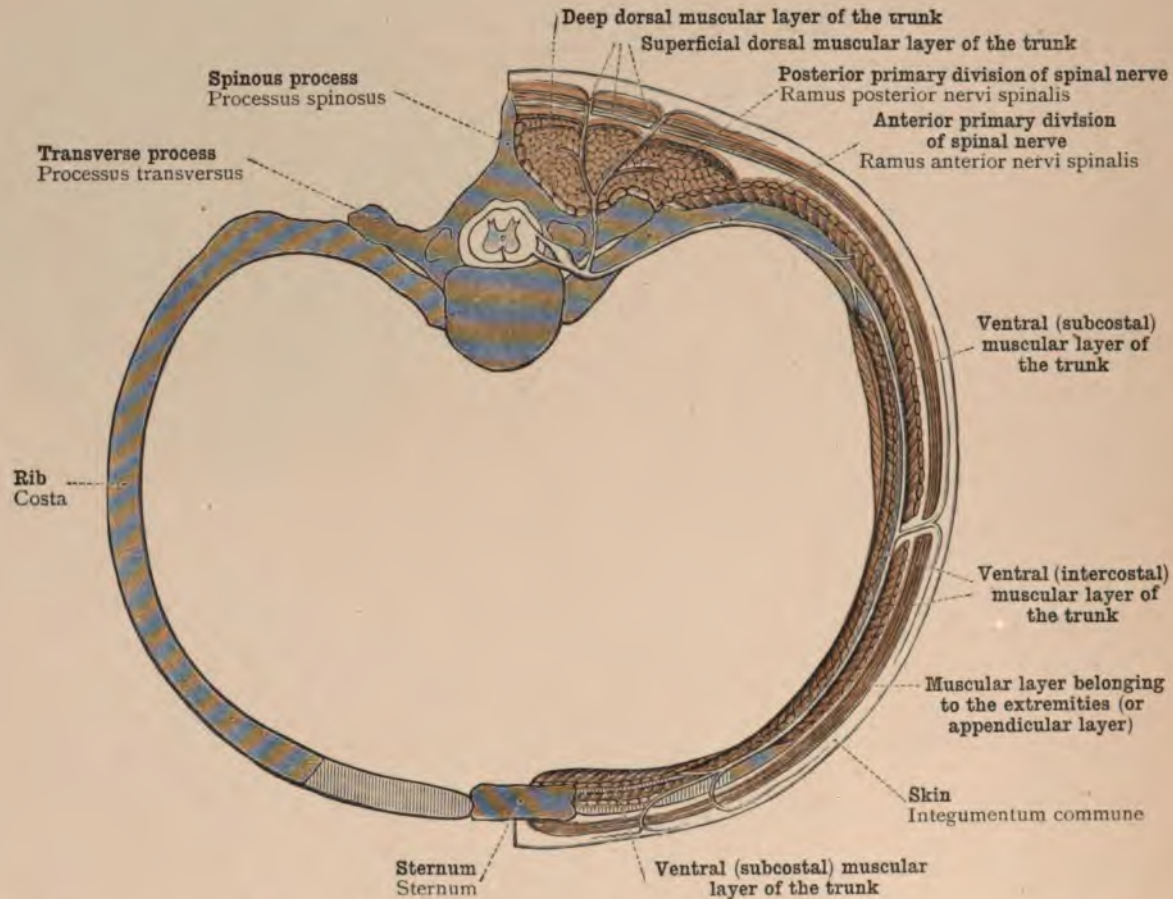
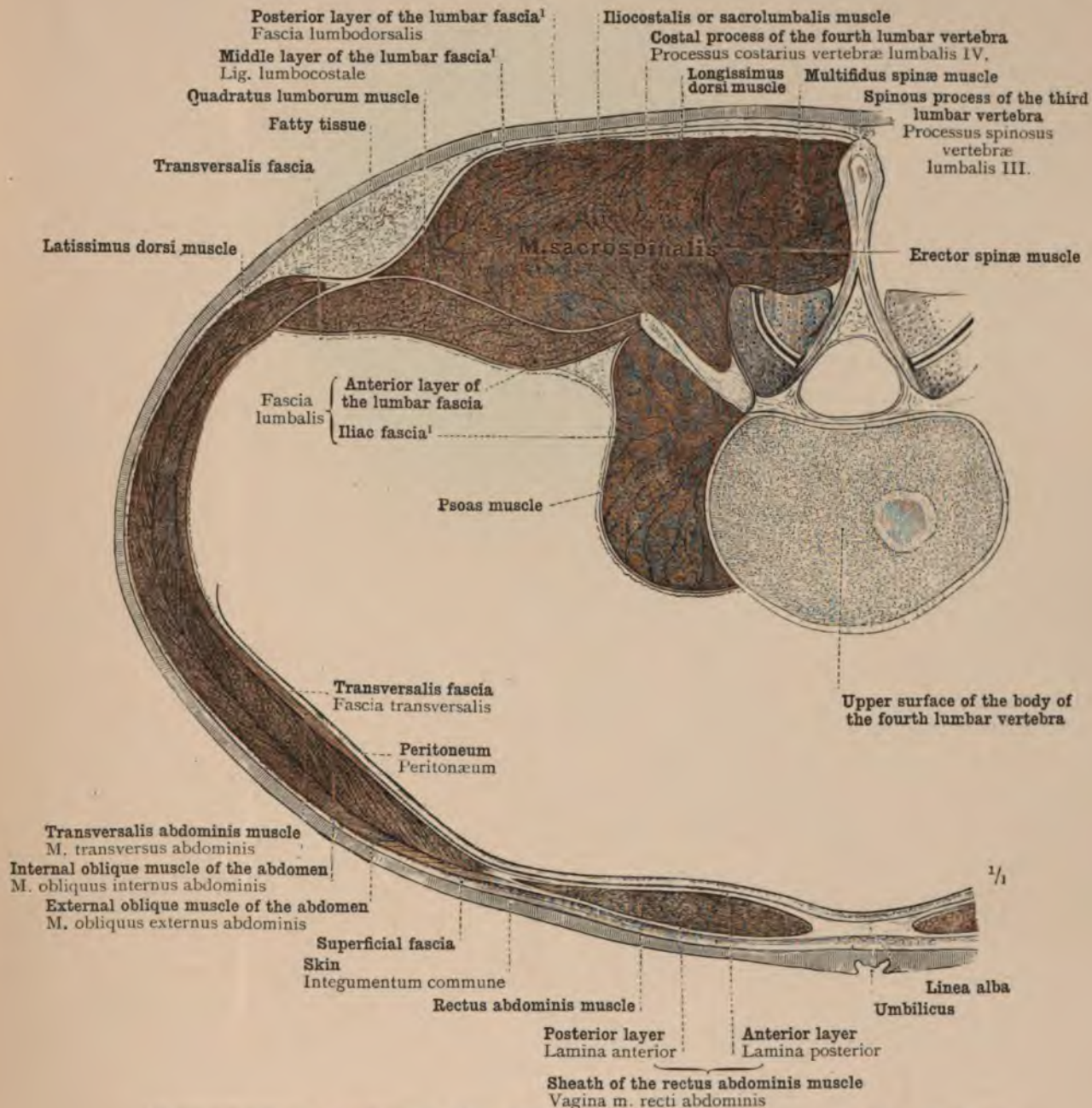


FIG. 525.—DIAGRAMMATIC REPRESENTATION OF THE MUSCLES OF THE TRUNK AND OF THE DISTRIBUTION OF THE SEGMENTAL NERVES BY WHICH THEY ARE SUPPLIED, SHOWN IN A THORACIC SEGMENT.

NOTE.

A brief explanation of this diagram seems needful, in the interest of students who have not made a special study of comparative anatomy. The muscles are grouped, first of all, into dorsal and ventral, the former being supplied by the posterior and the latter by the anterior primary divisions, respectively, of the spinal nerves. The dorsal muscles form the great mass lying chiefly in the hollow between the spinous processes and the angles of the ribs. They are classed in two groups—superficial and deep. These need not be further considered. The ventral muscles are shown to be arranged in three layers. In the abdominal region these are represented by three actual muscles, to name them from within outwards: the transversalis, the internal oblique, and the external oblique. Continuous with the deepest of these, the transversalis, for the purposes of this classification, are the triangularis sterni, the subcostals, the sternal and costal portions of the diaphragm and part of the levator ani—these form the *subcostal* layer. Continuous with the internal oblique are the intercostals, the posterior serrati, the scalene muscles, and the quadratus lumborum—these form the *intercostal* layer. Continuous with the external oblique are all the muscles connecting the scapula with the trunk, viz.: the trapezius, levator anguli scapulae, serratus magnus, and rhomboidei muscles, also the latissimus dorsi, the pectorals, the sternocleidomastoid, and the superficial perineal muscles—these constitute what may be called the *appendicular* layer. There is finally a more superficial layer still (not shown in the figure), superficial indeed to the deep fascia, corresponding to the panniculus carnosus of lower mammals, but represented in man only by the platysma myoides, the occipitofrontalis, and the muscles of the ear and face.—Tr.

Musculi trunci—Muscles of the trunk.



¹ In connexion with this figure, an account of the differences between the author's nomenclature of the fasciæ of the back and abdomen and the nomenclature commonly employed by English anatomists may most suitably be given. The *lumbar fascia*, according to most English authors, is regarded as consisting of three layers. The *superficial or posterior layer*, called by Toldt (see Fig. 526) *fascia lumbodorsalis*, is the layer passing behind the composite mass of the erector spinæ muscle to be attached to the tips of the spinous processes (see note to p. 267). The *middle layer*, called by Toldt (see Fig. 526 on this page and also Fig. 512 on p. 271) *ligamentum lumbocostale*, passes in front of the erector spinæ, between that muscle and the quadratus lumborum, to be attached to the tips of the costal (or so-called transverse) processes of the lumbar vertebrae. At the outer edge of the erector spinæ muscle the posterior and middle layers unite to form the posterior aponeurosis of the transversalis abdominis muscle. The *anterior layer of the lumbar fascia* (called by Toldt *fascia lumbalis*) is the thin membrane lying on the anterior surface of the quadratus lumborum muscle. At the inner edge of this muscle it is attached to the anterior surfaces of the costal processes of the lumbar vertebrae, and at the outer edge of the muscle it is continuous with the *transversalis fascia*, the membrane lining the deep surface of the transversalis abdominis muscle. The term *fascia lumbalis* is applied by Toldt also to the fascia covering the abdominal surface of the psoas muscle, but by English anatomists this membrane is regarded as a portion of the *iliac fascia*.—Tn.

FIG. 526.—THE STRATIFICATION OF THE MUSCLES OF THE TRUNK AND OF THEIR ASSOCIATED FASCIÆ, DISPLAYED IN A HORIZONTAL SECTION OF THE RIGHT HALF OF THE BODY-WALL. THE CONNEXIONS BETWEEN THE ANTERIOR APONEUROSES OF THE WIDE MUSCLES OF THE ABDOMEN AND THE SHEATH OF THE RECTUS ARE SHOWN.

The section was made in a frozen body at the level of the navel, and passed posteriorly through the intervertebral disc between the third and fourth lumbar vertebrae.

Musculi trunci—Muscles of the trunk.

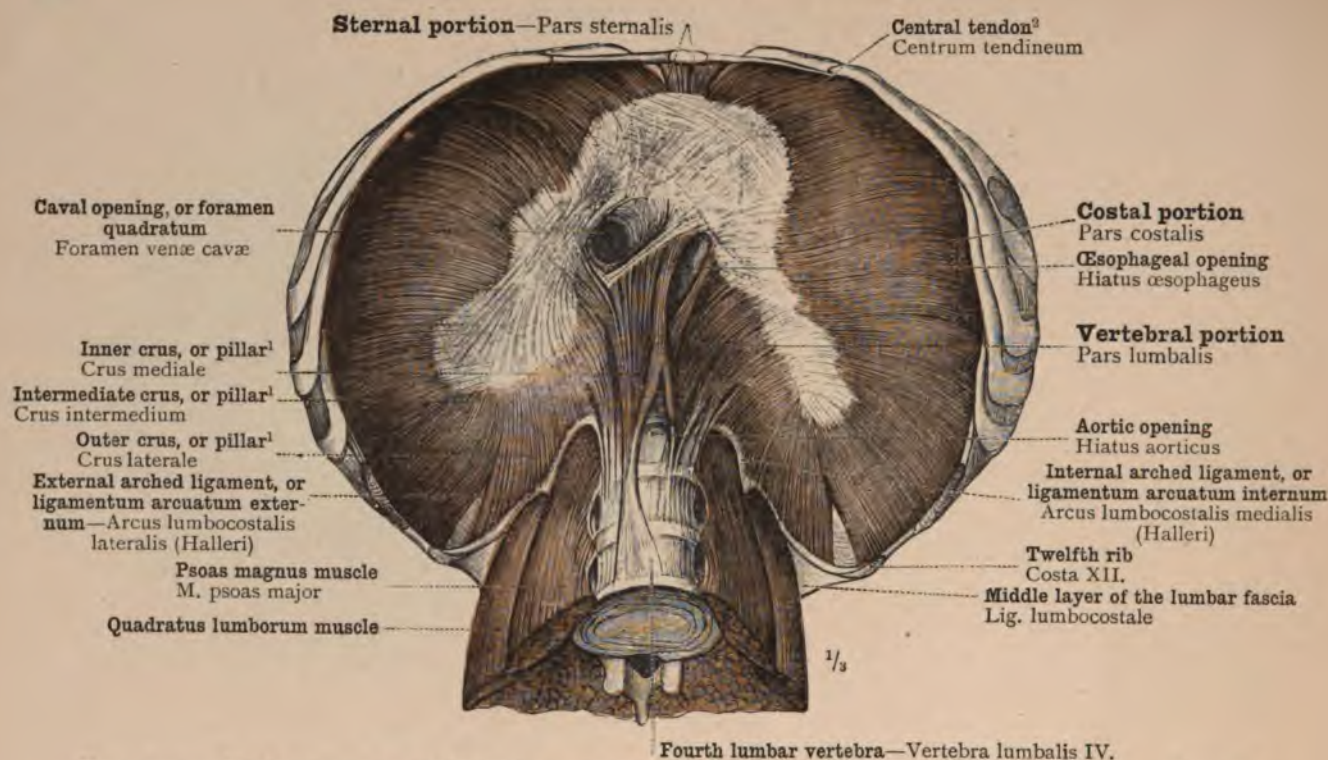
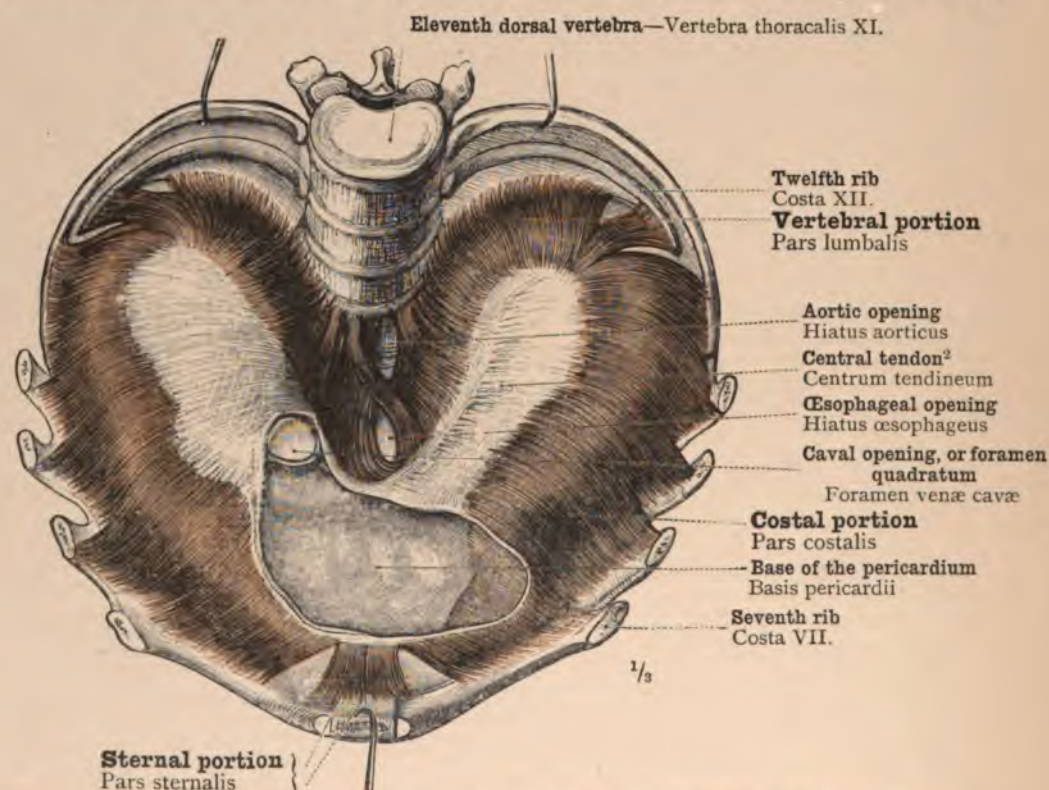


FIG. 527.—VIEW OF THE DIAPHRAGM WITH ITS CRURA FROM BELOW. (ABDOMINAL ASPECT.)



¹ The *crura*, or *pillars*, of the diaphragm described by English anatomists are two only in number, a longer *right crus* and a shorter *left crus*. Each of these is composed of all the fibres passing from the right and left sides, respectively, of the bodies of the lumbar vertebrae and the intervertebral discs to the central tendon. Thus, the *crus* of English authors corresponds to the combined *inner crus* and *intermediate crus* of Toldt; while the *outer crus* of the latter is in England not considered to belong to the crural portions of the diaphragm.

—Tr.

² Called also the *trefoil* or *cordiform tendon* of the diaphragm.—Tr.

FIG. 528.—VIEW OF THE DIAPHRAGM FROM ABOVE, WITH THE BASAL PORTION OF THE PERICARDIUM. (THORACIC ASPECT.)

Diapnagma—The diaphragm, or midriff.

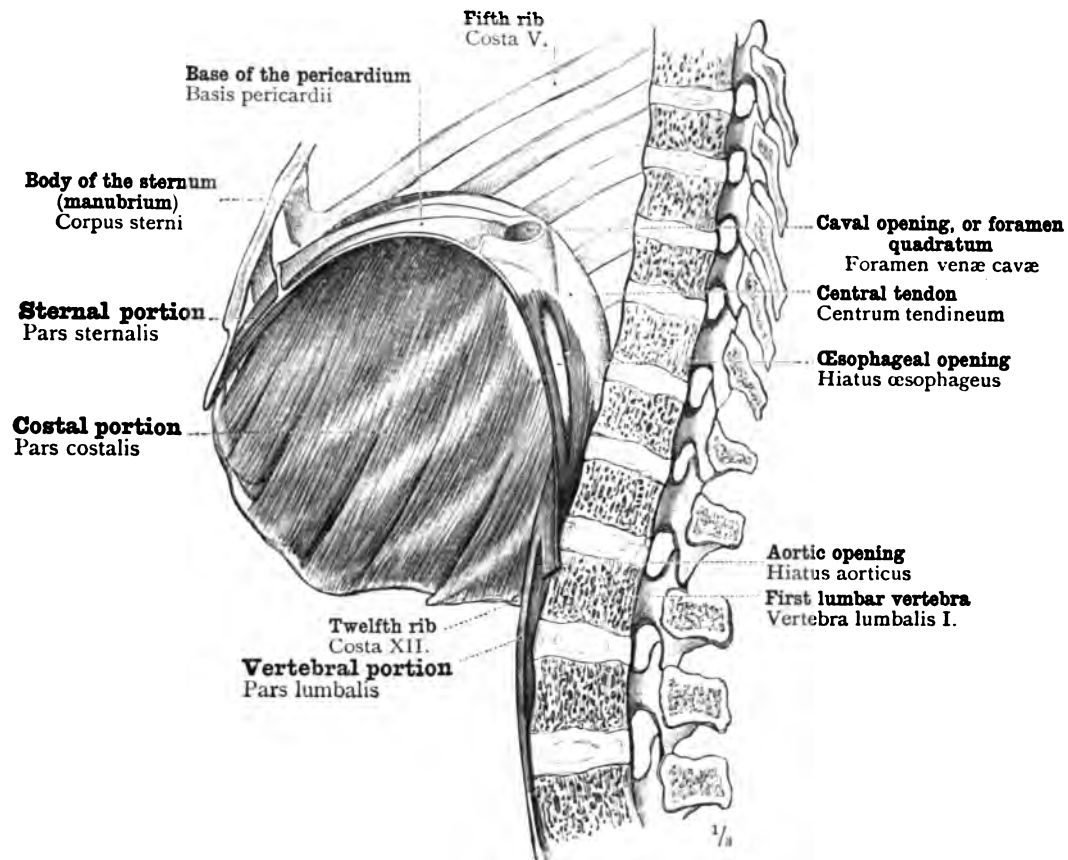


FIG. 529.—THE DIAPHRAGM IN MEDIAN-SAGITTAL SECTION, THE RIGHT HALF SEEN FROM WITHIN. DRAWN FROM A DRY PREPARATION.

The abdominal surface of the diaphragm was first cleaned by dissection and then given a coating of liquid plaster of Paris. When this had been allowed to harden, the thoracic surface of the muscle was exposed and similarly coated with plaster of Paris. In this manner the natural shape was as far as possible preserved.

Diaphragma—The diaphragm, or midriff.

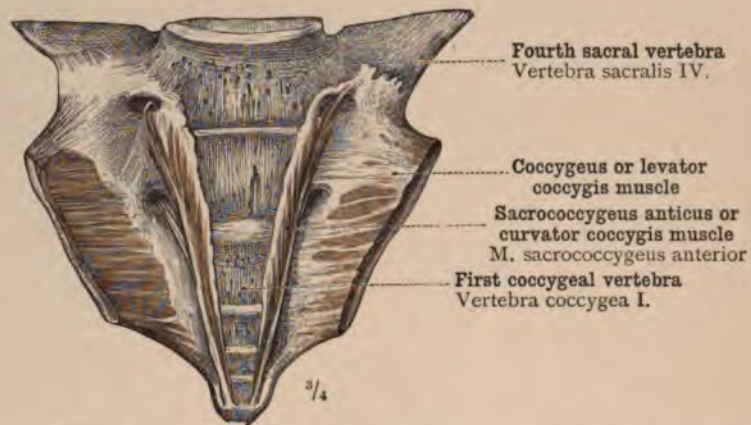


FIG. 530.—MUSCULUS SACROCOCYGEUS ANTERIOR, SACROCOCYGEUS ANTICUS OR CURVATOR COCCYGIS MUSCLE.

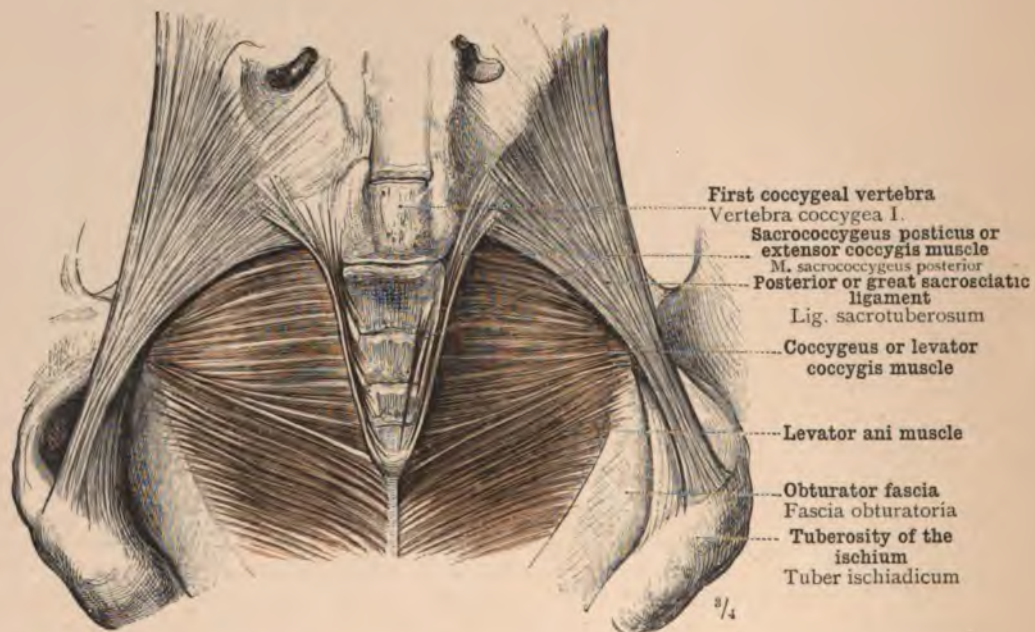
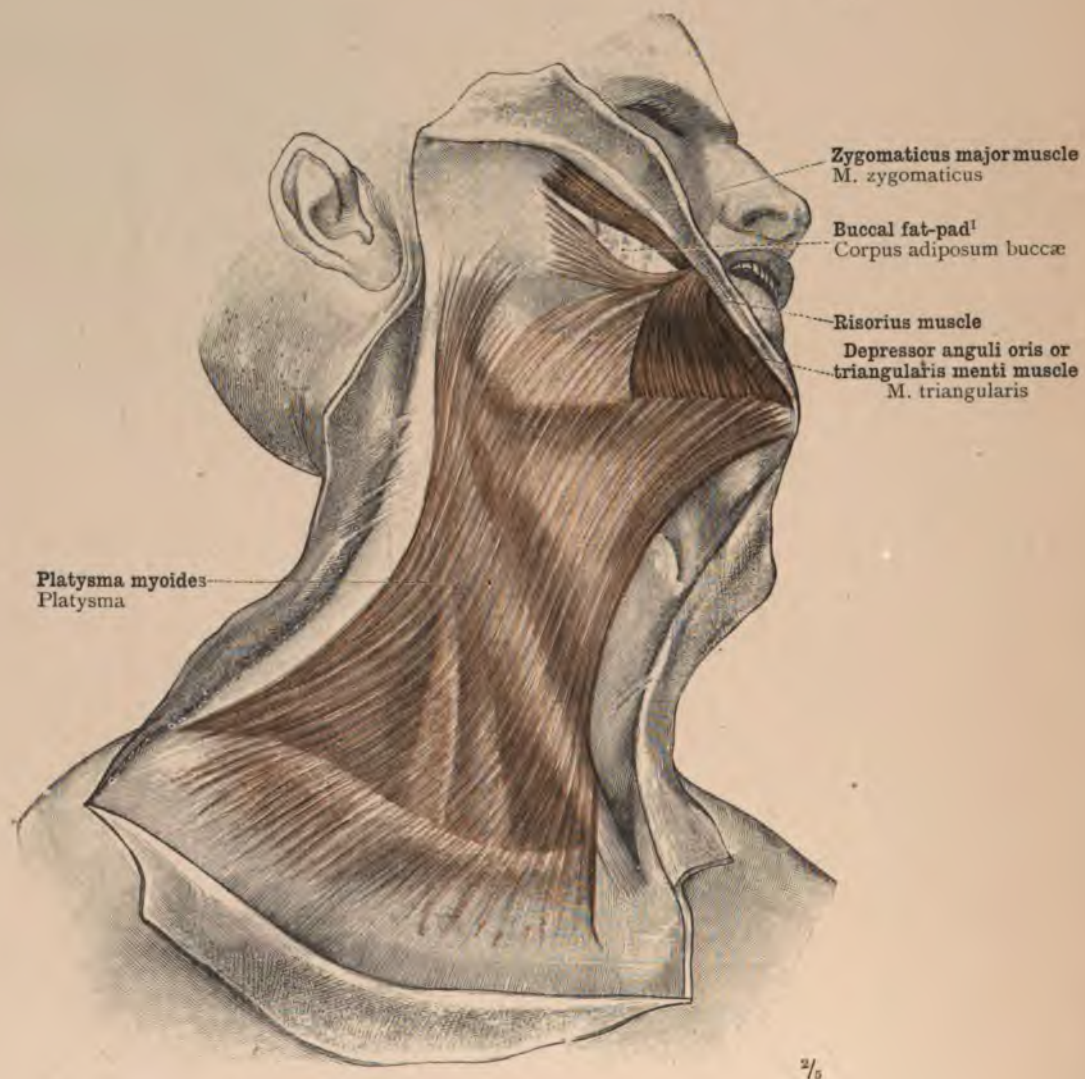


FIG. 531.—MUSCULUS SACROCOCYGEUS POSTERIOR, SACROCOCYGEUS POSTICUS OR EXTENSOR COCCYGIS MUSCLE; COCCYGEUS OR LEVATOR COCCYGIS MUSCLE.

Musculi sacrococcygei—Sacrococcygeal muscles.

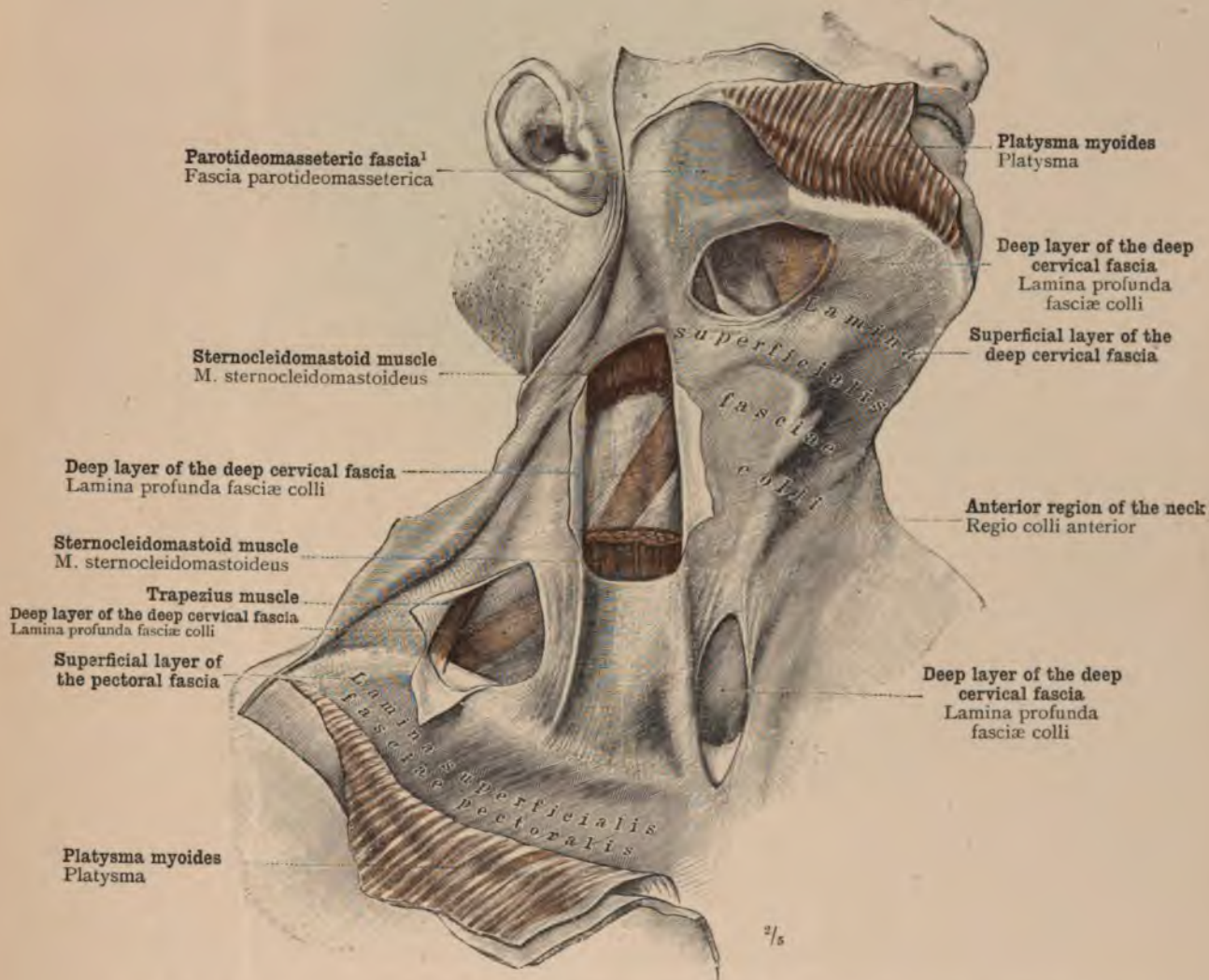
MUSCULI COLLI ET CAPITIS
THE MUSCLES
OF THE HEAD AND NECK



¹ Sometimes, but inappropriately, named the *sucking-pad*.—TR.

FIG. 532.—THE PLATYSMA MYOIDES OF THE RIGHT SIDE.

Musculi colli—Muscles of the neck.



¹ In England, the portion of the deep cervical fascia covering the parotid gland is usually distinguished as the *parotid fascia*; that covering the masseter muscle, as the *masseteric fascia*.—Tr.

FIG. 533.—FASCIA COLLI, THE DEEP CERVICAL FASCIA, DISPLAYED ON THE RIGHT SIDE OF THE NECK BY THE REMOVAL OF THE PLATYSMA MYOIDES.

In those places in which the deep layer of the fascia is clearly differentiated from the superficial layer, the latter has been partially removed. The submaxillary gland has been taken away, and the middle portion of the sternocleidomastoid muscle has been cut out, to lay bare in each case the deep layer of the fascia; between the cut ends of the sternocleidomastoid, and between the lower portion of this muscle and the trapezius, the anterior and posterior bellies respectively of the omohyoid muscle are visible beneath the deep layer of the fascia.

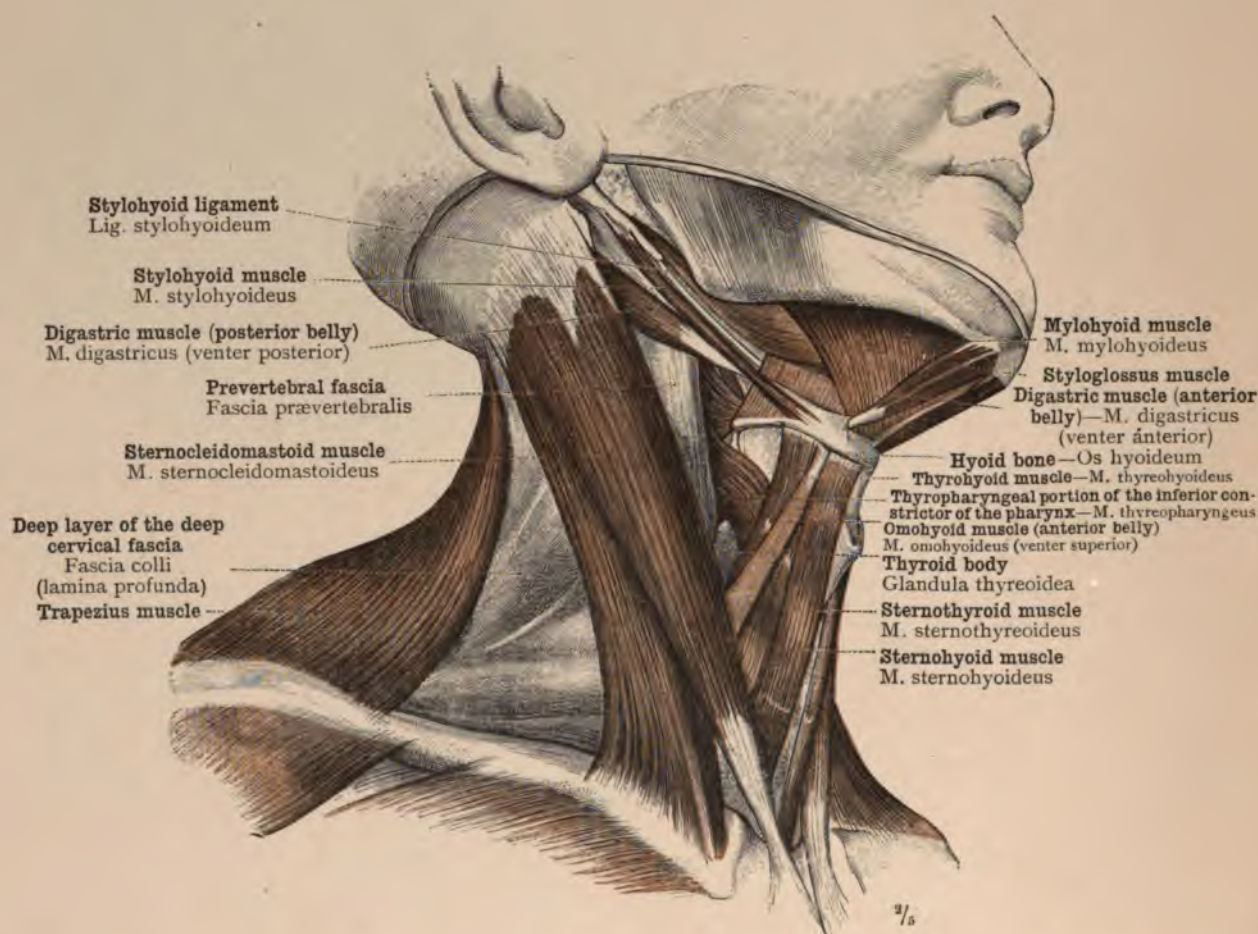


FIG. 534.—THE MUSCLES OF THE FRONT OF THE NECK, SHOWN ON THE RIGHT SIDE OF THE BODY. M. STERNOCLEIDOMASTOIDEUS, STERNOCLEIDOMASTOID MUSCLE; M. DIGASTRICUS, DIGASTRIC MUSCLE; THE RELATIONS OF THE LATTER TO THE STYLOHYOID AND MYLOHYOID MUSCLES. PORTIONS OF THE MUSCLES ARISING FROM THE STYLOID PROCESS, OF THE LOWER MUSCLES OF THE TONGUE, AND OF THE TRAPEZIUS MUSCLE, ARE DISPLAYED.

In the preparation of the muscles both the superficial and the deep layers of the deep cervical fascia have been removed, except in the posterior triangle of the neck, where the deep layer has been left intact.

Musculi colli—Muscles of the neck.

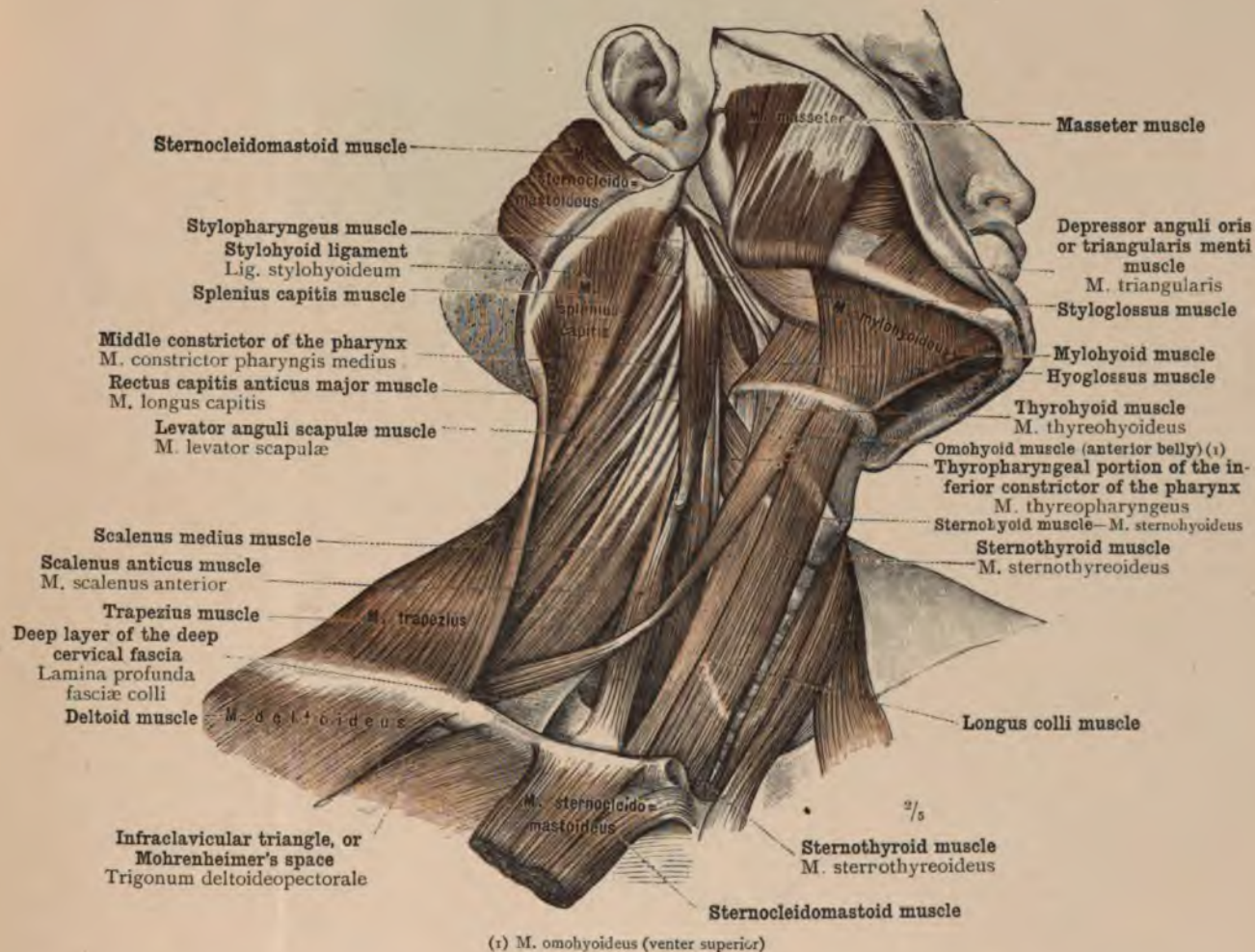


FIG. 535.—THE MUSCLES OF THE NECK, DISPLAYED ON THE RIGHT SIDE, THE STERNOCLEIDOMASTOID, DIGASTRIC, AND STYLOHYOID MUSCLES HAVING BEEN REMOVED. THE INFRAHYOID GROUP OF MUSCLES, STERNOHYOID, STERNOTHYROID, THYROHYOID, AND OMOHYOID. THE MYLOHYOID MUSCLE, THE ANTERIOR AND MIDDLE SCALENE MUSCLES, AND THE LEVATOR ANGULI SCAPULÆ; PORTIONS OF THE MUSCLES OF THE FACE, AND OF THE DEEP LATERAL AND PREVERTEBRAL MUSCLES OF THE NECK.

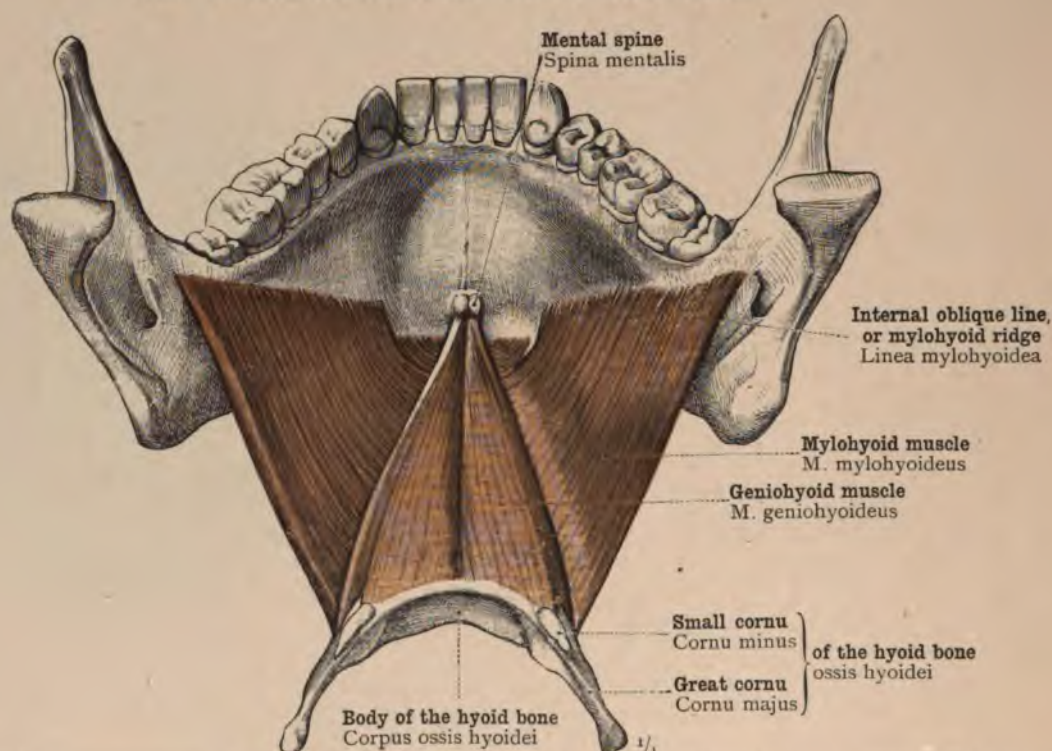
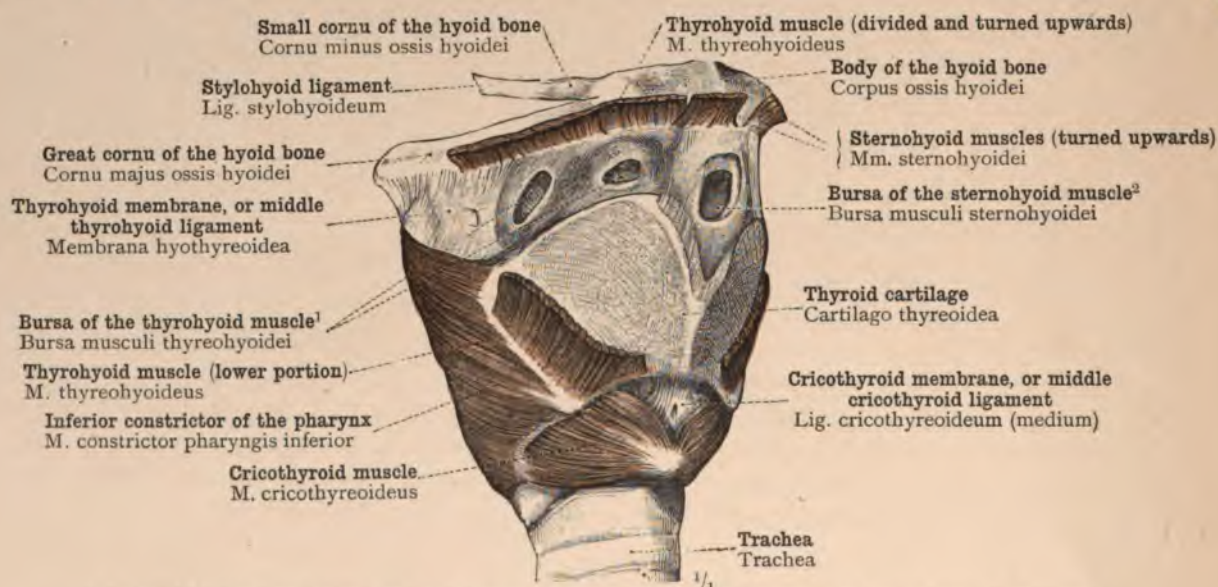


FIG. 536.—M. MYLOHYOIDEUS, THE MYLOHYOID MUSCLE, THE MUSCLES OF THE RIGHT AND LEFT SIDE TOGETHER FORMING A FLOOR BELOW THE ANTERIOR PART OF THE MOUTH, THE DIAPHRAGMA ORIS, AND THE GENIOHYOID MUSCLE, SEEN FROM ABOVE AND BEHIND



¹ The bursa of the thyrohyoid muscle, either single or double (the latter in the present instance), is situated beneath the thyrohyoid muscle on the anterior surface of the thyrohyoid membrane, external to the bursa of the sternohyoid muscle.—Tr.

² The bursa of the sternohyoid muscle is situated beneath the upper extremity of the sternohyoid muscle and in front of the thyrohyoid membrane, close to the median line.—Tr.

FIG. 537.—THE BURSAE BELOW THE HYOID BONE. THE STERNOHYOID AND THYROHYOID MUSCLES HAVE BEEN DIVIDED TRANSVERSELY, AND THE PORTIONS OF THESE MUSCLES LEFT ATTACHED TO THE HYOID BONE HAVE BEEN TURNED UPWARDS. SEEN OBLIQUELY FROM THE RIGHT SIDE AND BEFORE.

Musculi colli—Muscles of the neck.

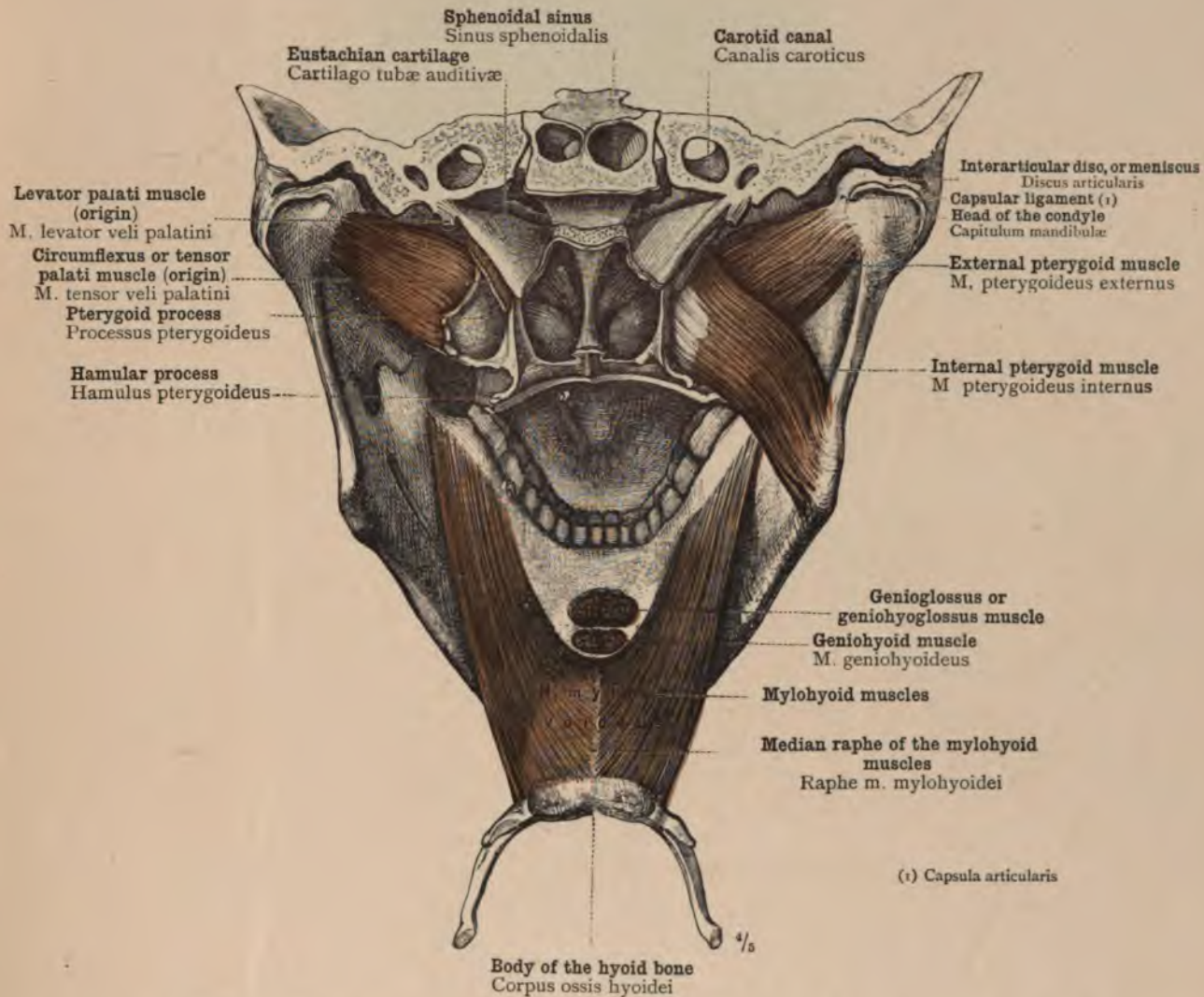


FIG. 538.—M. MYLOHYOIDEUS, THE MYLOHYOID MUSCLE, THE RIGHT AND LEFT MUSCLES FORMING THE DIAPHRAGMA ORIS, SEEN FROM ABOVE AND BEHIND. THE PTERYGOID MUSCLES, EXTERNAL AND INTERNAL, ARE DISPLAYED, BOTH INTACT ON THE RIGHT SIDE, WHILE ON THE LEFT SIDE THE INTERNAL PTERYGOID MUSCLE HAS BEEN REMOVED IN ORDER TO LAY BARE IN ITS WHOLE EXTENT THE POSTERIOR SURFACE OF THE EXTERNAL PTERYGOID MUSCLE.

The levator palati and the circumflexus or tensor palati muscles have been cut away close to their respective origins.

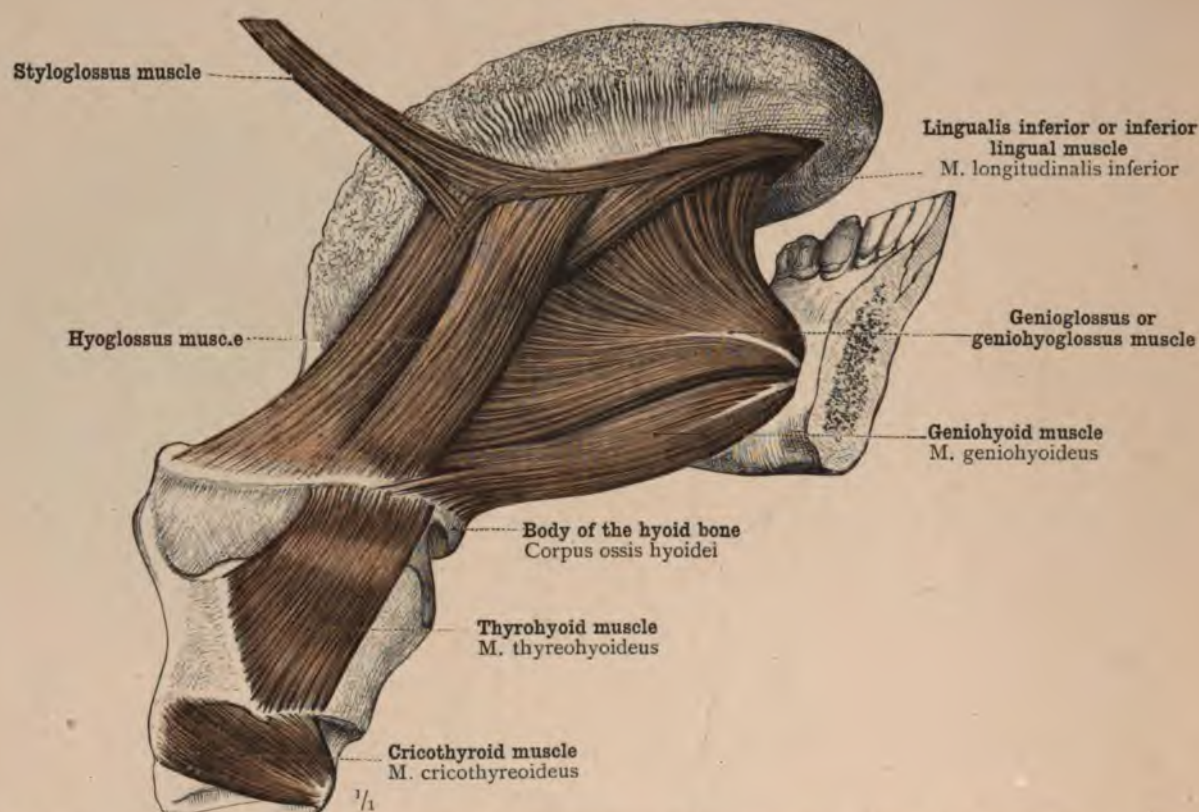


FIG. 539.—THE MUSCLES OF THE TONGUE, WITH THE GENIOHYOID MUSCLE, SEEN FROM THE RIGHT SIDE: THE HYOGLOSSUS, THE STYLOGLOSSUS, AND THE GENIOGLOSSUS OR GENIOHYOGLOSSUS MUSCLES. ALSO THE THYROID AND CRICOTHYROID MUSCLES.

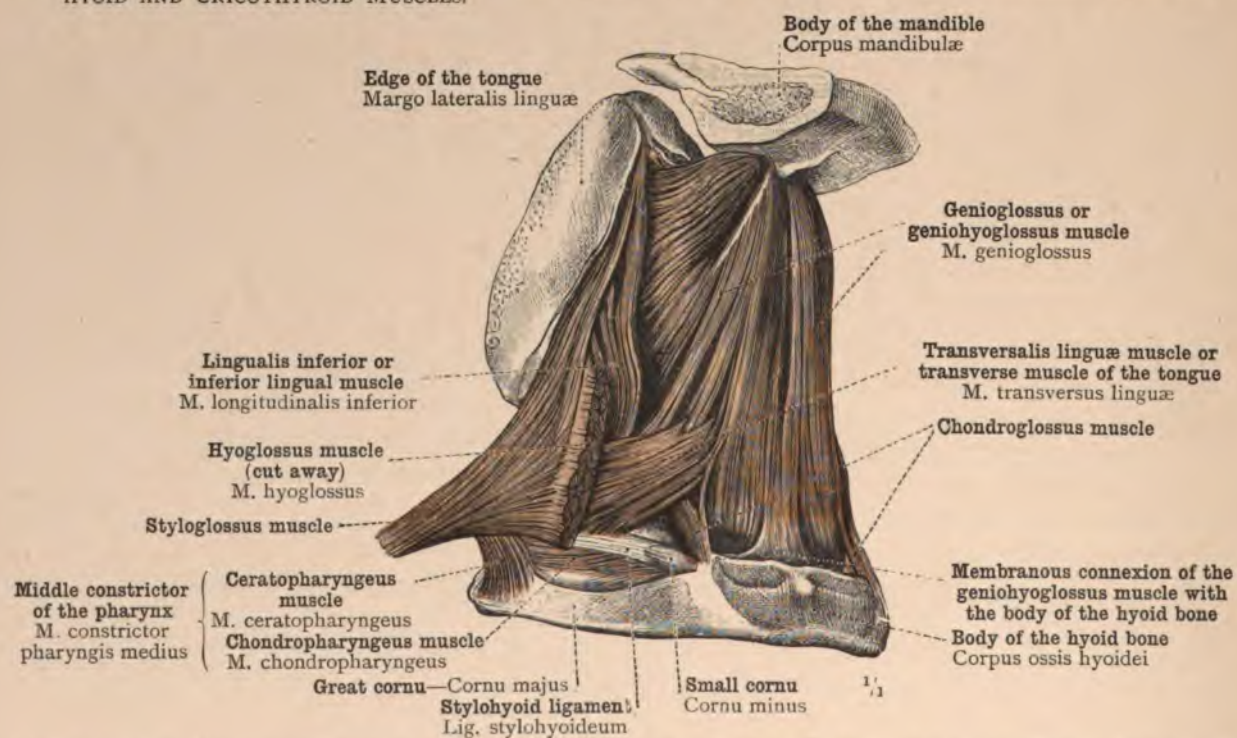


FIG. 540.—THE MUSCLES OF THE TONGUE SEEN FROM THE RIGHT SIDE AND BELOW, DISPLAYED BY THE REMOVAL OF THE HYOGLOSSUS MUSCLE: M. LONGITUDINALIS INFERIOR, THE INFERIOR LINGUAL MUSCLE; M. TRANSVERSUS (VEL TRANSVERSALIS) LINGUÆ, THE TRANSVERSE MUSCLE OF THE TONGUE, AND ITS RELATION TO THE GENIOHYOGLOSSUS MUSCLE; THE CHONDROGLOSSUS MUSCLE.

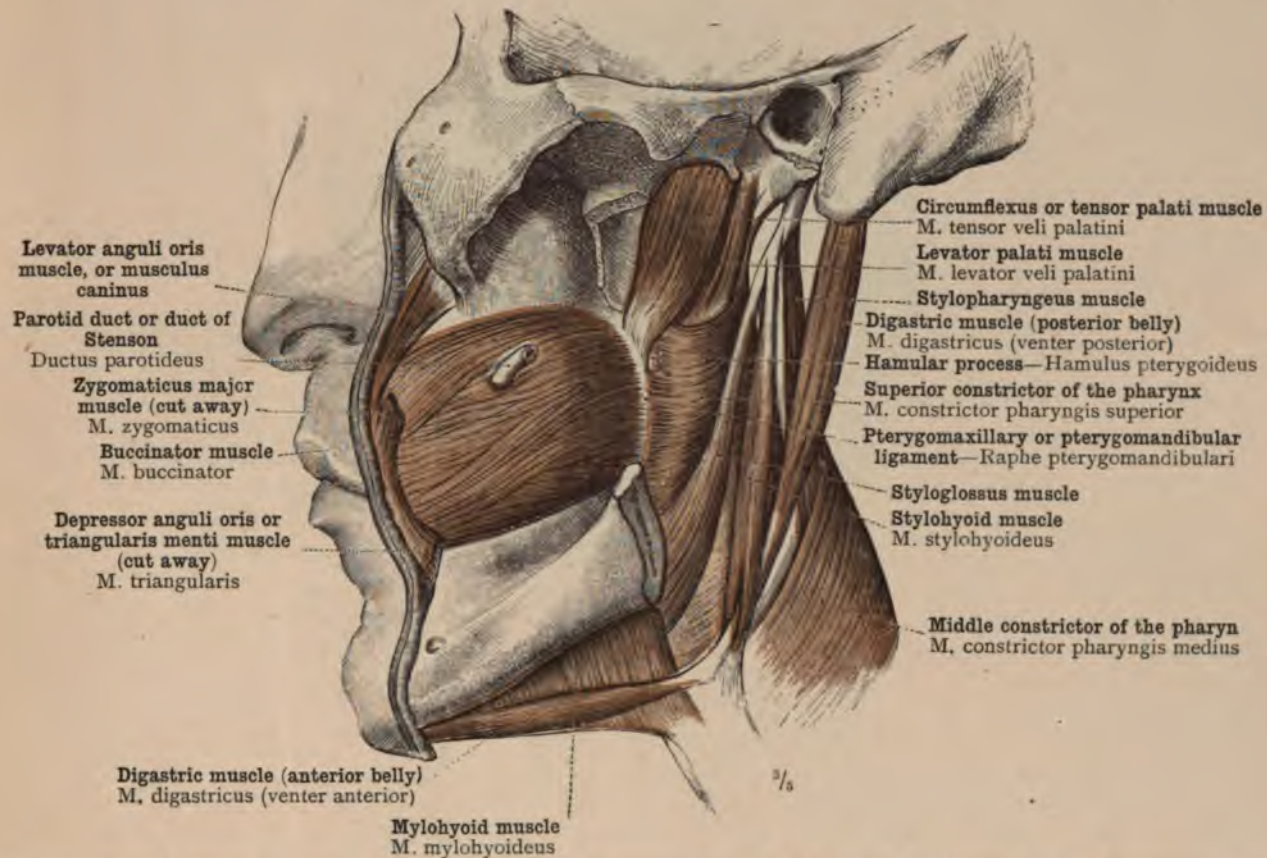


FIG. 541.—THE MUSCLES ARISING FROM THE STYLOID PROCESS WITH THE DIGASTRIC MUSCLE; THE CIRCUMFLEXUS OR TENSOR PALATI, THE LEVATOR PALATI, AND THE BUCCINATOR MUSCLE; SEEN FROM THE LEFT SIDE.

The ramus of the jaw has been removed.

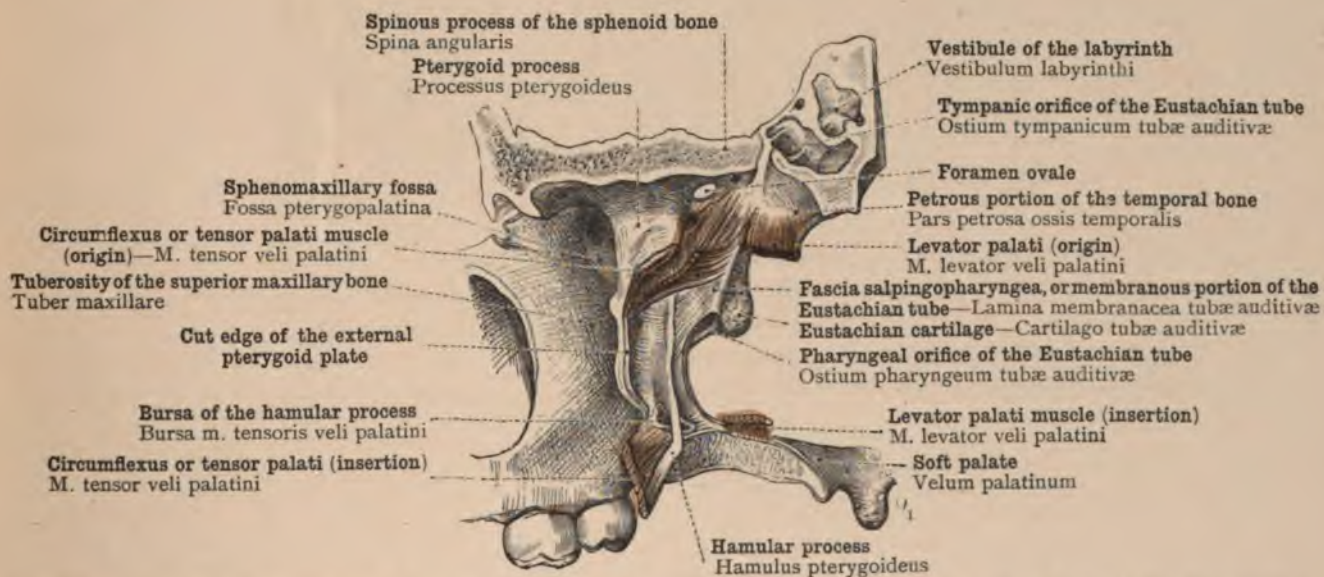


FIG. 542.—ORIGIN AND INSERTION OF THE CIRCUMFLEXUS OR TENSOR PALATI MUSCLE AND OF THE LEVATOR PALATI MUSCLE, WITH THE SYNOVIAL BURSA OF THE HAMULAR PROCESS, SEEN FROM THE LEFT SIDE.

Musculi colli et capitis—Muscles of the head and neck.

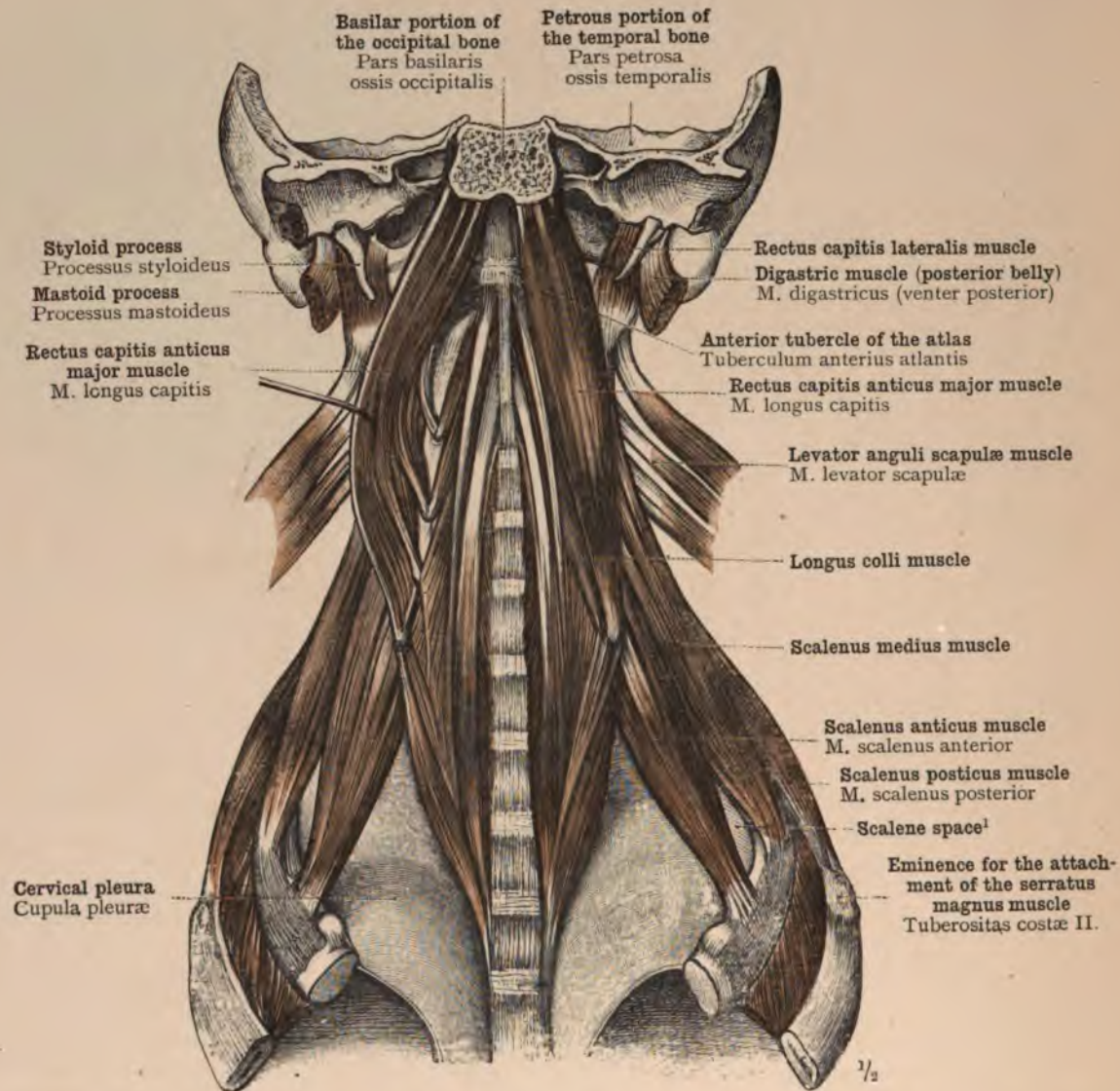
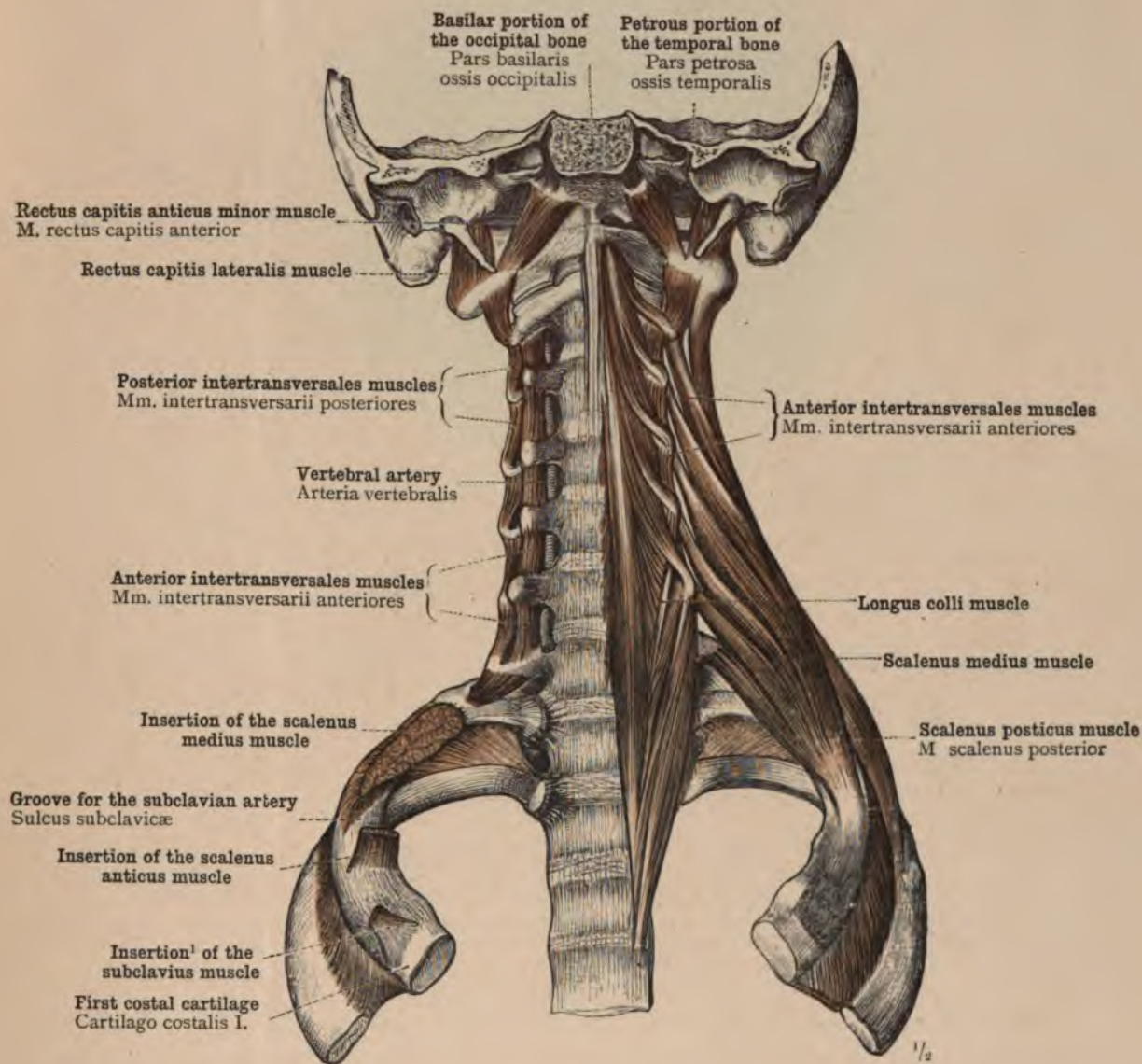


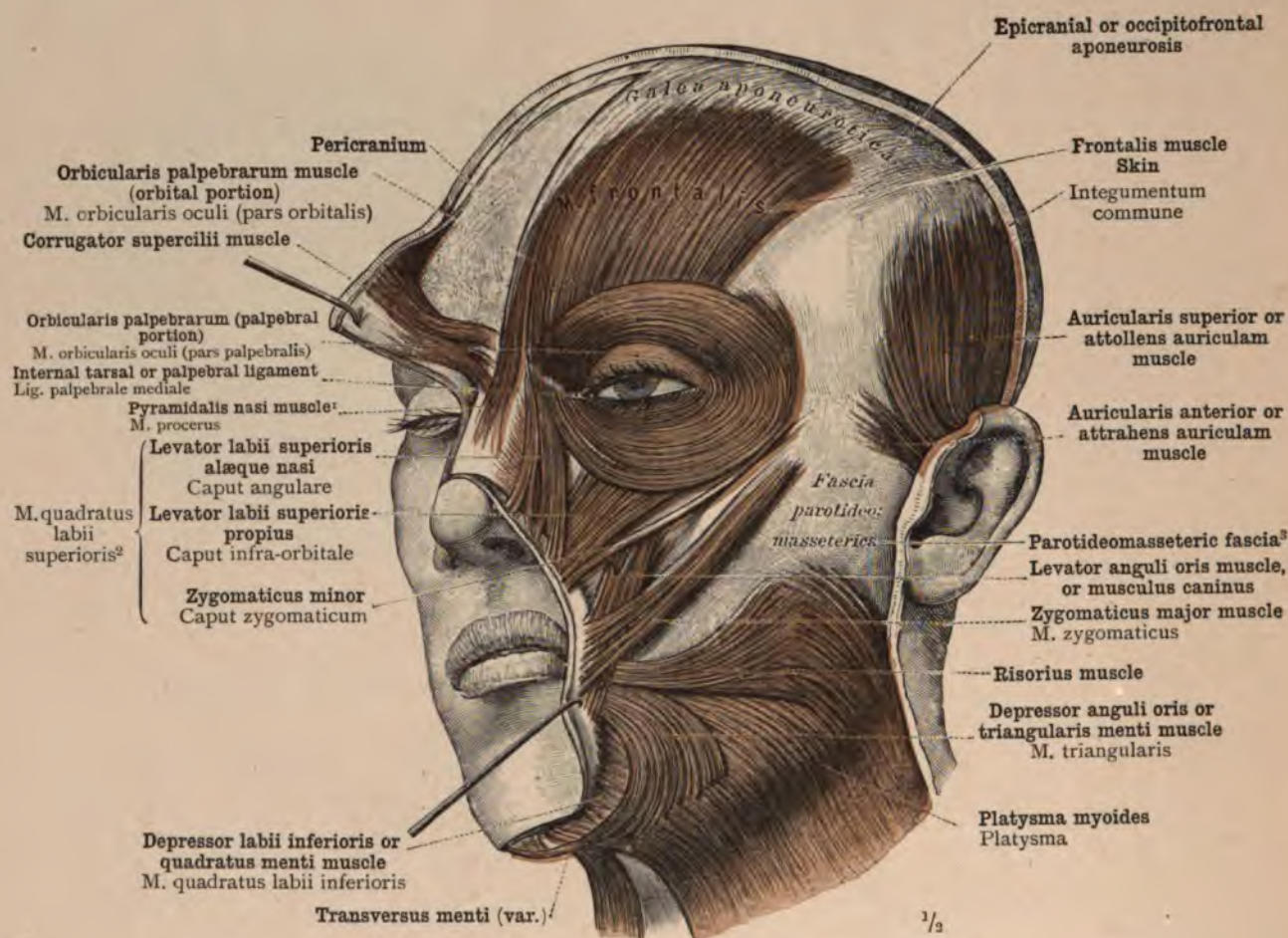
FIG. 543.—THE DEEP LATERAL AND PREVERTEBRAL MUSCLES OF THE NECK, DISPLAYED BY THE REMOVAL OF THE FACIAL PORTION OF THE SKULL AND THE CERVICAL VISCERA. SEEN FROM BEFORE. SCALENUS ANTICUS, MEDIUS, AND POSTICUS MUSCLES; LONGUS COLLI MUSCLE; RECTUS CAPITIS ANTICUS MAJOR MUSCLE. THE RELATION OF THE SCALENUS MUSCLES AND THE LONGUS COLLI MUSCLE TO THE CERVICAL PLEURA. THE SCALENUS SPACE.¹

¹ See note to p. 277.



¹ English anatomists regard this as the *origin* of the subclavius muscle.—Tr.

FIG. 544.—THE DEEP LATERAL AND PREVERTEBRAL MUSCLES OF THE NECK, THE RECTUS CAPITIS ANTICUS MAJOR AND SCALENUS ANTICUS MUSCLES HAVING BEEN REMOVED. ON THE RIGHT SIDE THE LONGUS COLLI AND THE SCALENUS MEDIUS AND POSTICUS MUSCLES HAVE ALSO BEEN REMOVED. SEEN FROM BEFORE. INTERTRANSVERSALES MUSCLES; RECTUS CAPITIS ANTICUS MINOR AND RECTUS CAPITIS LATERALIS MUSCLES.



¹ The pyramidalis nasi muscle (*Musculus procerus*) is regarded by the author as a portion of the occipitofrontalis muscle.—Tr.

² In England the levator labii superioris alæque nasi, the levator labii superioris proprius, and the zygomaticus minor, are regarded as three separate muscles, not, as in the nomenclature of the German Anatomical Society, as the three heads, the angular head, the infra-orbital head, and the zygomatic head, respectively, of a single muscle, the quadratus labii superioris.—Tr.

³ See note to p. 291.

FIG. 545.—THE SUPERFICIAL LAYER OF THE MUSCLES OF FACIAL EXPRESSION AND THEIR RELATION TO THE PLATYSMA MYOIDES. DEPRESSOR ANGULI ORIS OR TRIANGULARIS MENTI MUSCLE; RISORIIUS MUSCLE; ZYGOMATICUS MAJOR MUSCLE; LEVATOR LABII SUPERIORIS ALÆQUE NASI, LEVATOR LABII SUPERIORIS PROPRIUS, AND ZYGOMATICUS MINOR MUSCLES (see note ² above); ORBICULARIS PALPEBRARUM MUSCLE. THE ANTERIOR PORTIONS OF THE OCCIPITOFONTALIS MUSCLE—THE FRONTALIS AND THE PYRAMIDALIS NASI MUSCLES (see note ¹ above). AURICULARIS SUPERIOR OR ATTOLLENS AURICULAM AND AURICULARIS ANTERIOR OR ATTRAHENS AURICULAM MUSCLES. THE EPICRANIAL APONEUROSIS; THE PERICRANIUM; THE PAROTIDOMASSETERIC FASCIA (see note ³ above). SEEN OBLIQUELY FROM THE LEFT SIDE AND BEFORE.

Musculi faciei—Muscles of the face.⁴

⁴ See note ¹ on page 303.



¹ This consists of the *compressor naris* muscle and of the outer part of the *depressor ala nasi* muscle of English anatomists.—Tr.

² See note ² to p. 300.

FIG. 546.—THE ATTACHMENT OF THE ORBICULARIS PALPEBRARUM MUSCLE IN THE NEIGHBOURHOOD OF THE INNER CANTHUS, AND ITS RELATION TO THE CORRUGATOR SUPERCILII MUSCLE, SEEN FROM BEFORE. RIGHT SIDE.

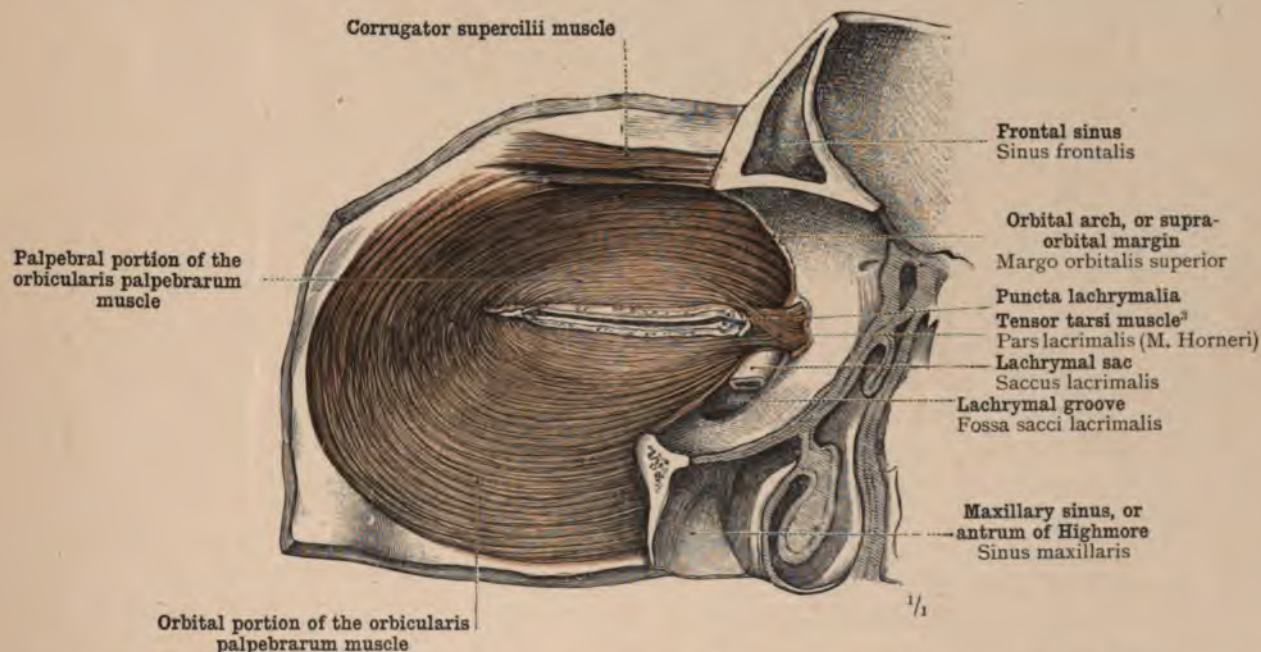


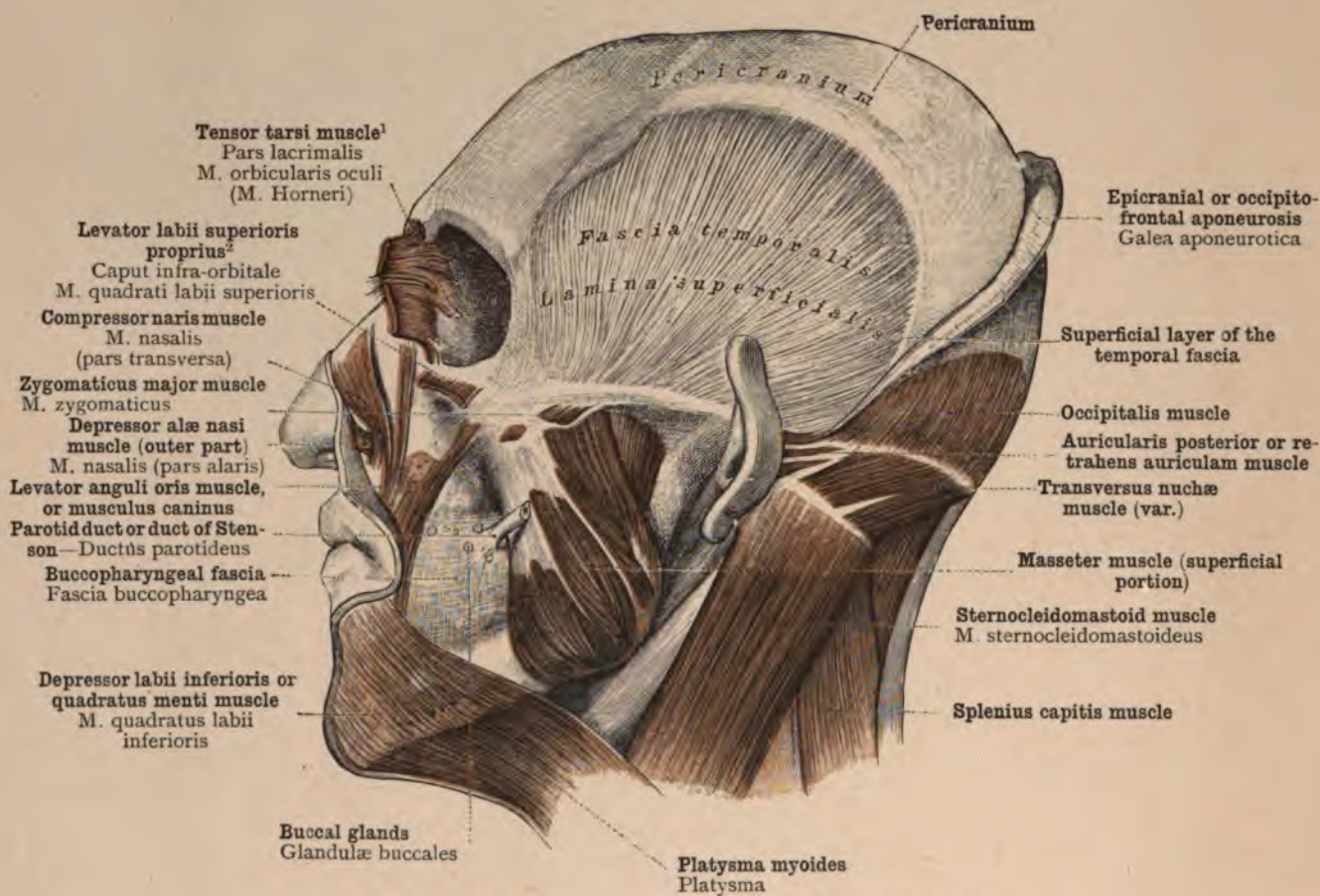
FIG. 547.—THE THREE PORTIONS⁴ OF THE ORBICULARIS PALPEBRARUM MUSCLE, AND THE RELATION OF THIS MUSCLE TO THE CORRUGATOR SUPERCILII MUSCLE, SEEN FROM BEHIND. LEFT SIDE.

The soft parts in the neighbourhood of the eyelids, with the exception of the origin of the orbicularis palpebrarum-muscle, have been detached from the bone; and by the removal of the conjunctiva, the tarsal cartilages, and the palpebral fascia (septum orbitale), the orbicularis muscle has been laid bare from behind.

³ Called also *pars lacrimalis muscoli orbicularis palpebrarum*, *Horner's muscle*, or *musculus sacci lachrymalis*.—Tr.

⁴ These three portions being the orbital, palpebral and lachrymal portions; the last-mentioned, however, is by English anatomists usually described as a distinct muscle, the *tensor tarsi* (see also note ³).—Tr.

M. orbicularis oculi—Orbicularis palpebrarum and tensor tarsi muscles.



¹ See notes ³ and ⁴ on p. 301.

² See note ² on p. 300.

FIG. 548.—THE DEEP LAYER OF THE MUSCLES OF FACIAL EXPRESSION WITH THE MASSETER MUSCLE, DISPLAYED BY THE REMOVAL OF THE LEVATOR LABII SUPERIORIS ALÆQUE NASI, LEVATOR LABII SUPERIORIS PROPRIUS, ZYGOMATICUS MINOR, AND THE DEPRESSOR ANGULI ORIS OR TRIANGULARIS MENTI MUSCLES, OF THE PAROTIDEOMASSETERIC FASCIA, AND OF THE PAROTID GLAND: LEVATOR ANGULI ORIS MUSCLE, OR MUSCULUS CANINUS; DEPRESSOR LABII INFERIORIS OR QUADRATUS MENTI MUSCLE; COMPRESSOR NARIS AND DEPRESSOR ALÆ NASI MUSCLES. OCCIPITALIS MUSCLE. EPICRANIAL OR OCCIPITOFONTAL APONEUROSIS; PERICRANIUM; TEMPORAL FASCIA AND ANTERIOR PORTION OF BUCCOPHARYNGEAL FASCIA. LEFT SIDE.

Musculi faciei—Muscles of the face.³

³ See note ¹ on p. 303.

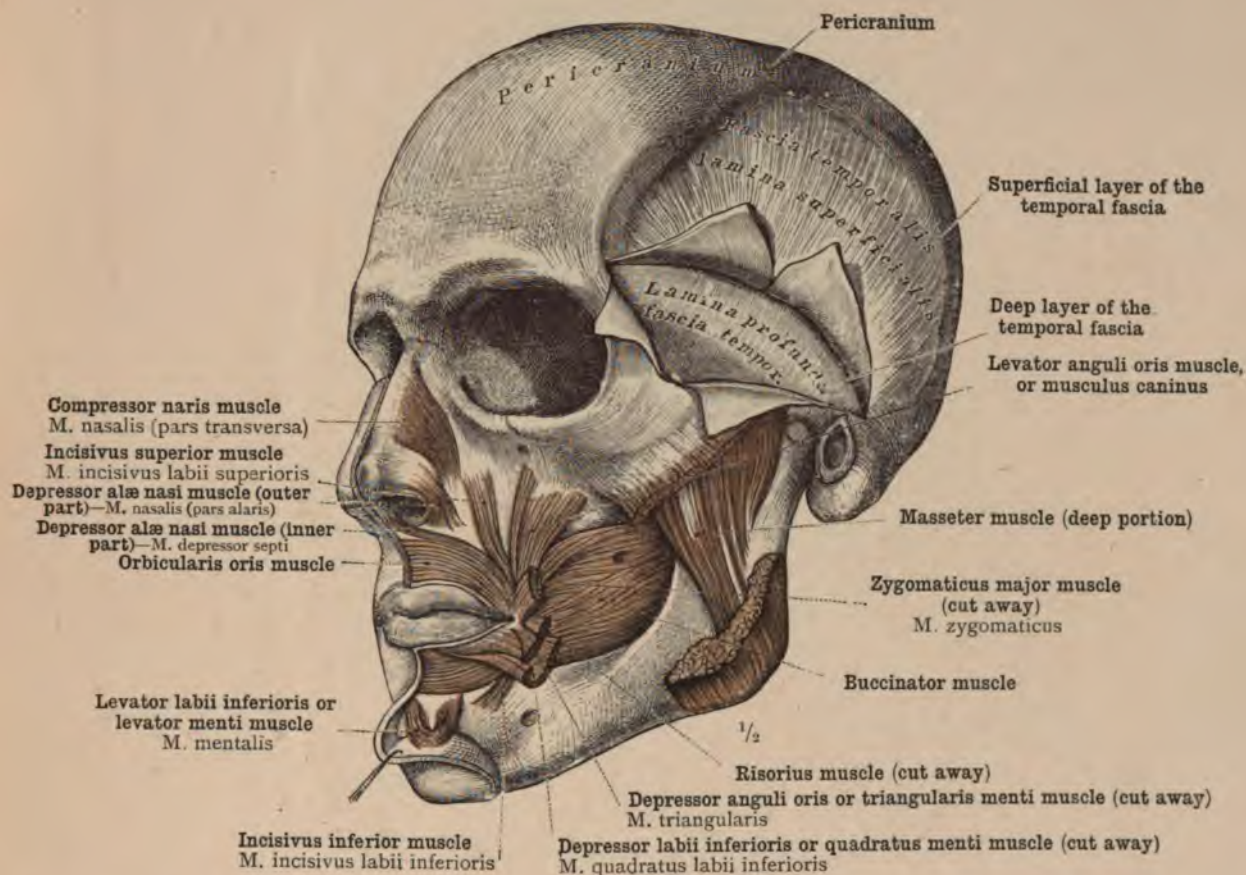


FIG. 549.—THE DEEP LAYER OF THE MUSCLES OF FACIAL EXPRESSION, AND THE RELATION OF THE ORBICULARIS ORIS MUSCLE TO THE ADJOINING MUSCLES. SEEN OBLIQUELY FROM BEFORE AND THE LEFT SIDE. BUCCINATOR MUSCLE, THE BUCCOPHARYNGEAL FASCIA HAVING BEEN DISSECTED OFF; ACCESSORY SLIPS OF THE ORBICULARIS ORIS MUSCLE KNOWN RESPECTIVELY AS INCISIVUS SUPERIOR AND INCISIVUS INFERIOR MUSCLES; LEVATOR LABII INFERIORIS OR LEVATOR MENTI MUSCLE; COMPRESSOR NARIS MUSCLE¹; DEPRESSOR ALÆ NASI MUSCLE¹; LEVATOR ANGULI ORIS MUSCLE, OR MUSCULUS CANINUS. THE DEEP PORTION OF THE MASSETER MUSCLE, DISPLAYED BY THE PARTIAL REMOVAL OF THE LARGER SUPERFICIAL PORTION. PERICRANIUM; TEMPORAL FASCIA.

¹ The principal differences between the author's grouping of the facial muscles and that usual in England is shown in the following table:

ENGLISH.		TOLDT'S (being the nomenclature of the German Anatomical Society).	
Compressor naris muscle		= pars transversa	} musculi nasalis.
Depressor alæ nasi muscle	{ outer part	= pars alaris	
	{ inner part	= musculus depressor septi.	
Levator labii superioris alæque nasi muscle		= caput angulare	} musculi quadrati labii superioris.
Levator labii superioris proprius muscle		= caput infra-orbitale	
Zygomaticus minor muscle		= caput zygomaticum	

—TR.

Musculi faciei—Muscles of the face (see note above).

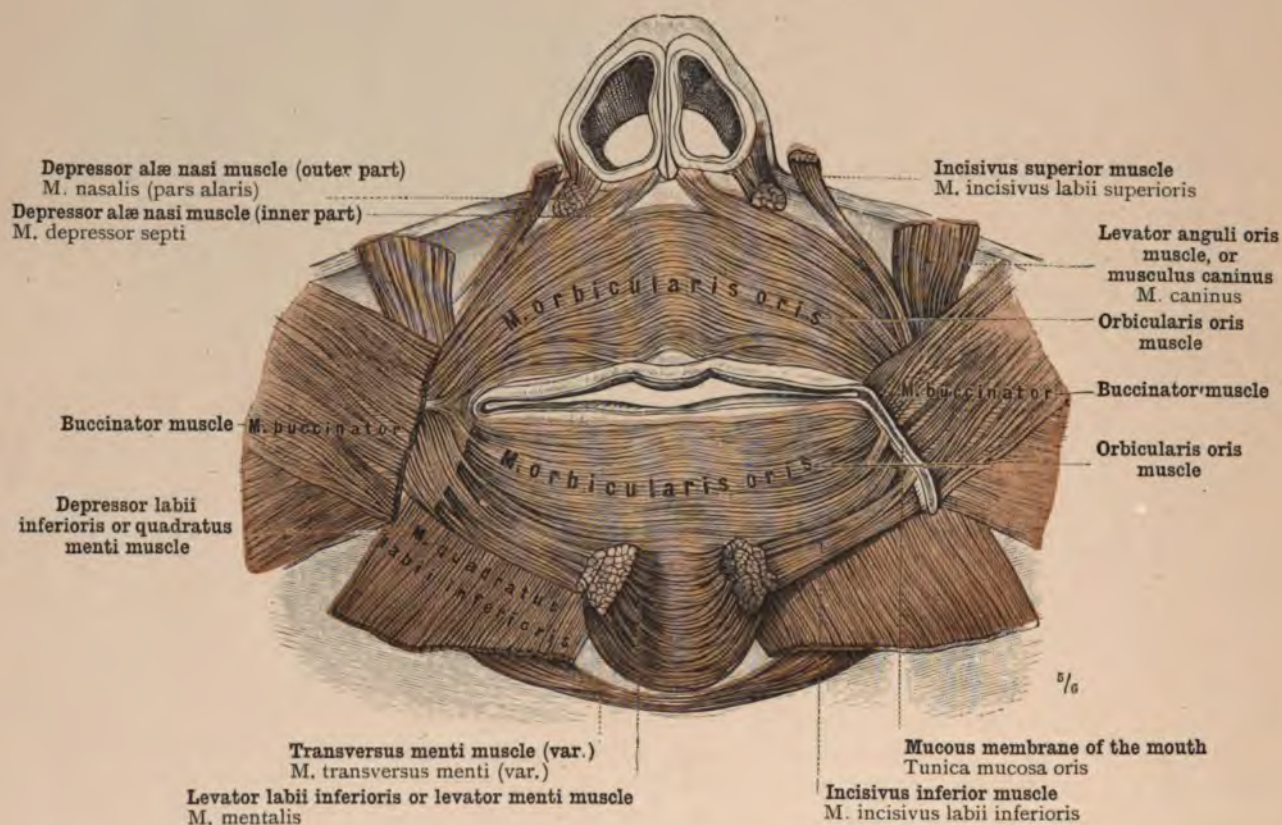


FIG. 550.—ORBICULARIS ORIS MUSCLE, AND ITS RELATION TO THE ADJOINING MUSCLES, SEEN FROM BEHIND.

The soft parts in the neighbourhood of the mouth and the cartilaginous portion of the nose were together detached from the bone, and the muscles laid bare from behind by the removal of the mucous membrane of the mouth. On the right side, a narrow strip of mucous membrane, passing outwards from the angle of the mouth, has been retained, to show the partial attachment thereto of the buccinator and orbicularis oris muscles.

M. orbicularis oris—Orbicularis oris muscle.

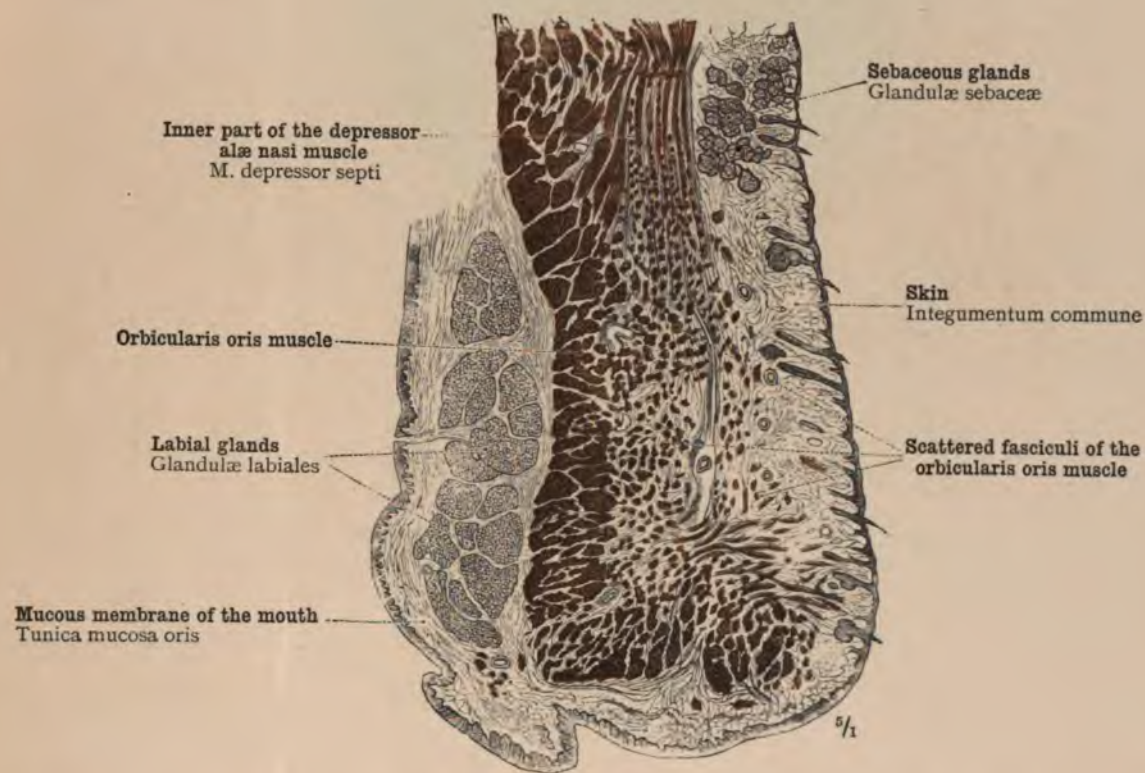


FIG. 551.—SAGITTAL SECTION THROUGH THE MIDDLE OF THE UPPER LIP, SHOWING THE SITUATION IN THE LIP OF THE ORBICULARIS ORIS, AND THE SHAPE OF THAT MUSCLE IN CROSS-SECTION.

Numerous thin fasciculi of the muscle are shown radiating to the skin.

M. orbicularis oris—Orbicularis oris muscle.

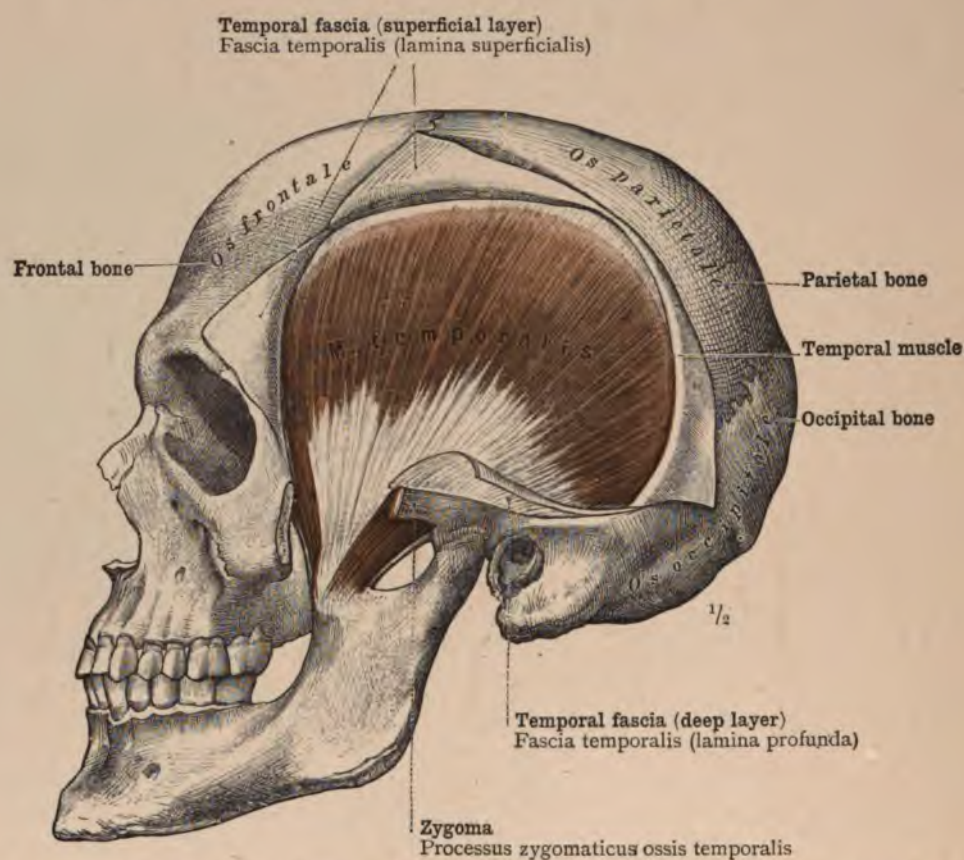


FIG. 552.—TEMPORAL MUSCLE, DISPLAYED ON THE LEFT SIDE OF THE HEAD, AFTER PARTIAL REMOVAL OF THE ZYGOMATIC ARCH, BY DISSECTING OFF THE SUPERFICIAL AND DEEP LAYERS OF THE TEMPORAL FASCIA.

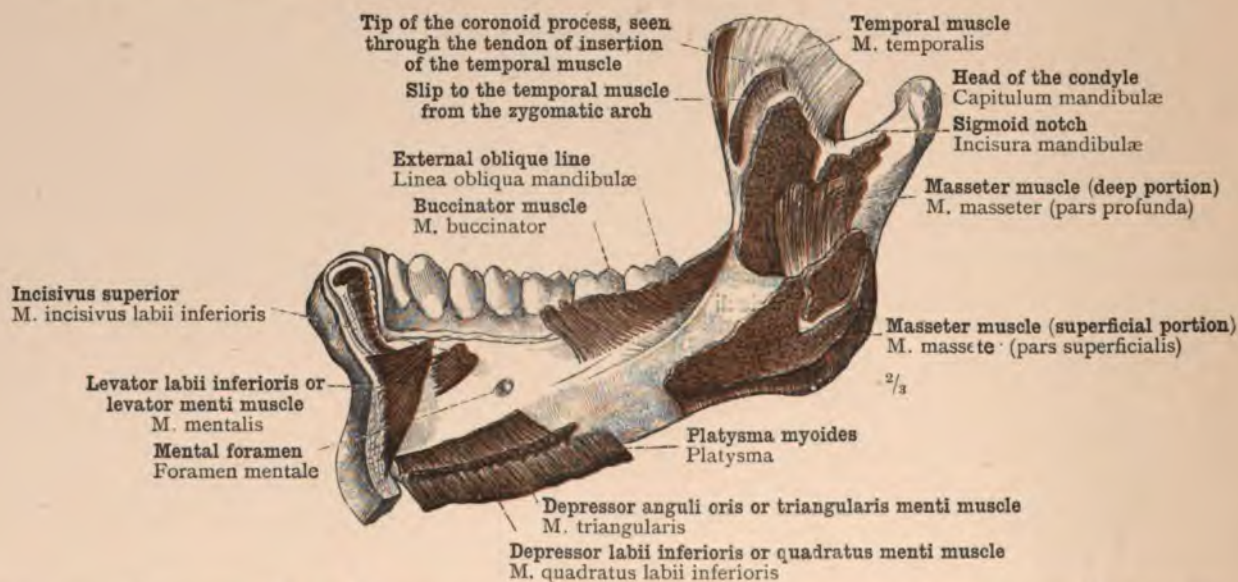


FIG. 553.—ATTACHMENT OF MUSCLES TO THE OUTER SURFACE OF THE INFERIOR MAXILLARY BONE. LEFT SIDE.

Musculi masticatorii—Muscles of mastication.

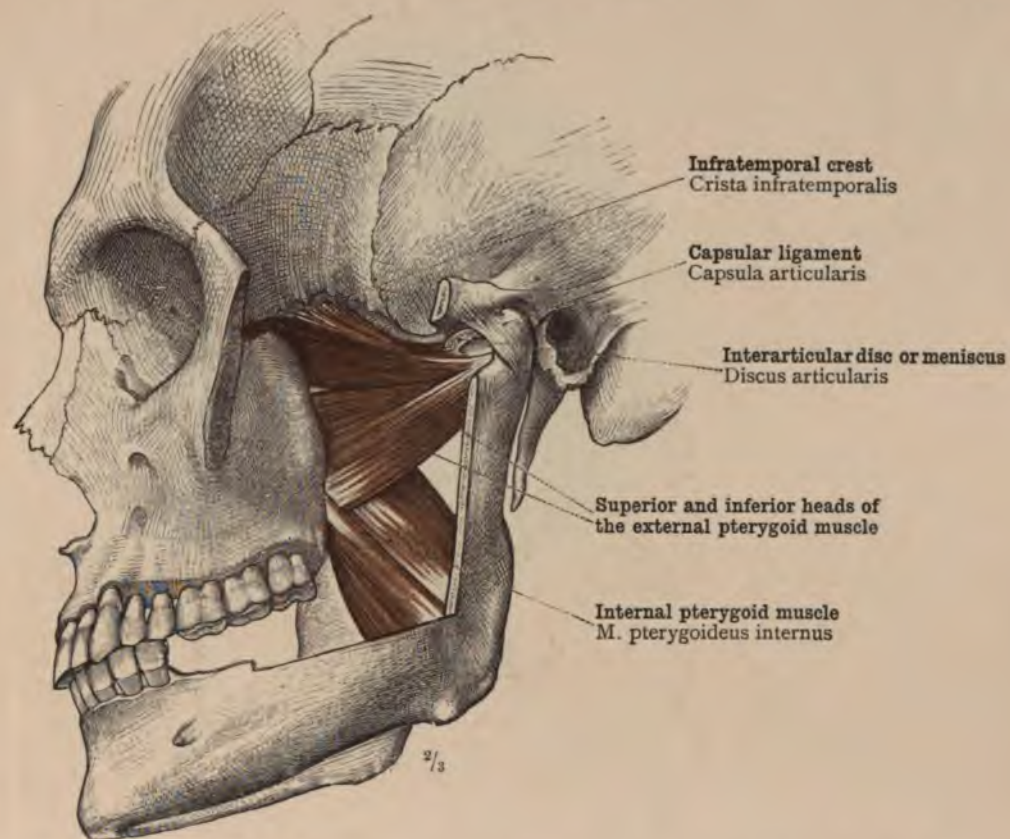


FIG. 554.—MUSCULI PTERYGOIDEI, EXTERNUS ET INTERNUS, EXTERNAL AND INTERNAL PTERYGOID MUSCLES, DISPLAYED BY THE REMOVAL OF THE ZYGOMATIC ARCH AND OF A PORTION OF THE RAMUS OF THE INFERIOR MAXILLARY BONE. SEEN FROM THE LEFT SIDE.

The temporomandibular articulation has been opened, in order to show the insertion of some of the fibres of the superior head of the external pterygoid muscle into the anterior border of the inter-articular fibrocartilage and the capsular ligament of the articulation.

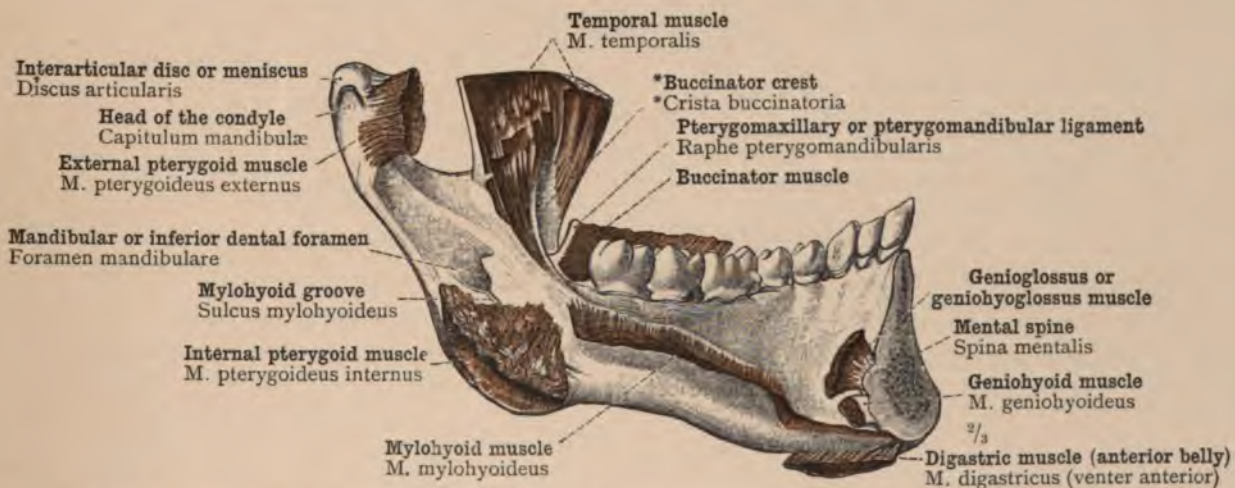


FIG. 555.—ATTACHMENT OF MUSCLES TO THE INNER SURFACE OF THE INFERIOR MAXILLARY BONE. RIGHT SIDE.

Musculi masticatorii—Muscles of mastication.

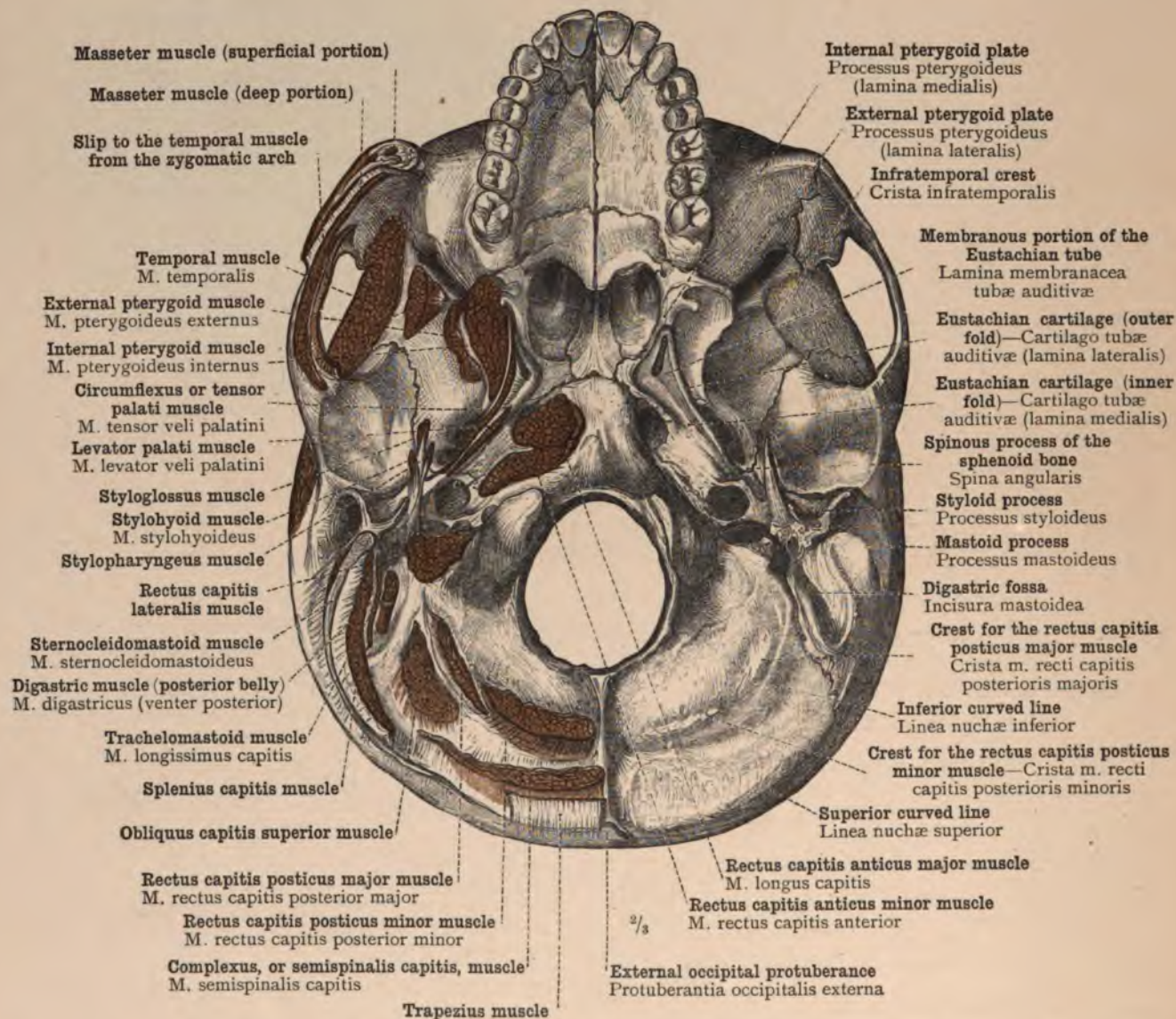


FIG. 556.—BASIS CRANII EXTERNA, EXTERNAL ASPECT OF THE BASE OF THE SKULL. AREAS OF ORIGIN AND INSERTION OF THE MUSCLES ATTACHED TO THE BASE OF THE SKULL.

The muscular attachments are shown on the right side only of the base of the skull; the bony prominences, etc., on the left side.

Attachment of Muscles to the External Aspect of the Base of the Skull.

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MUSCULI EXTREMITATIS
SUPERIORIS

THE MUSCLES
OF THE UPPER EXTREMITY

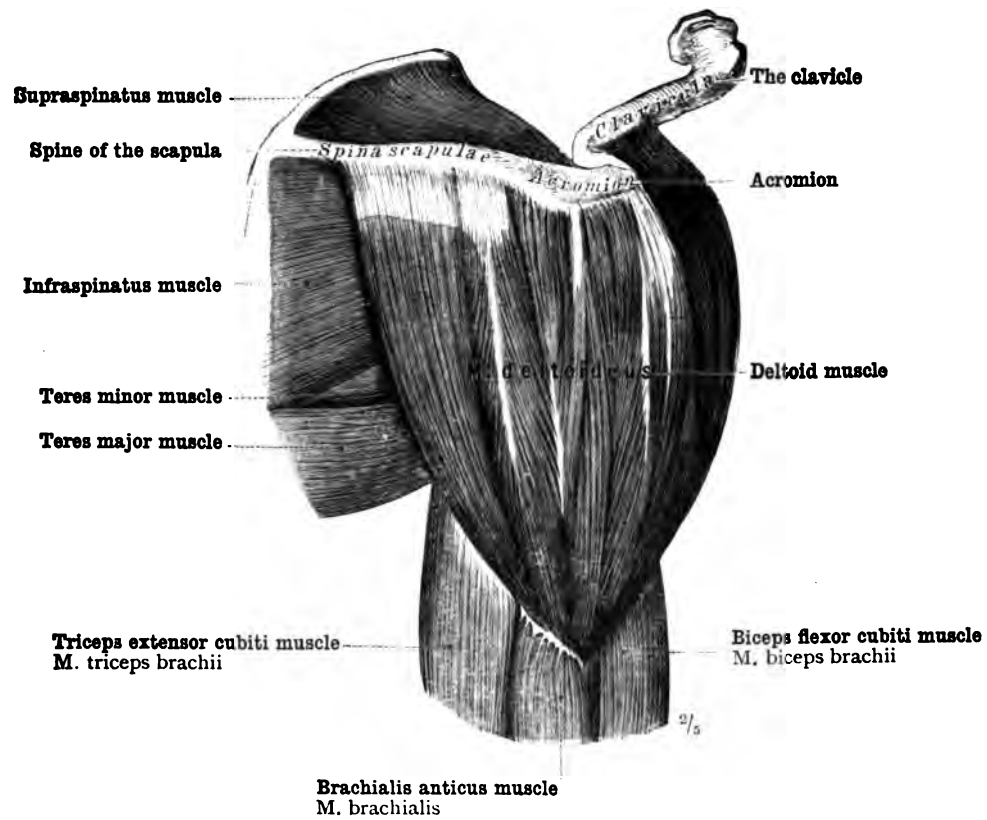


FIG. 557.—M. DELTOIDEUS, DELTOID MUSCLE, OF THE RIGHT SIDE, DORSO-EXTERNAL ASPECT, SHOWING ITS RELATIONS TO THE ADJOINING MUSCLES OF THE SHOULDER AND OF THE UPPER ARM.

Musculi articulationis humeri—Muscles of the shoulder.

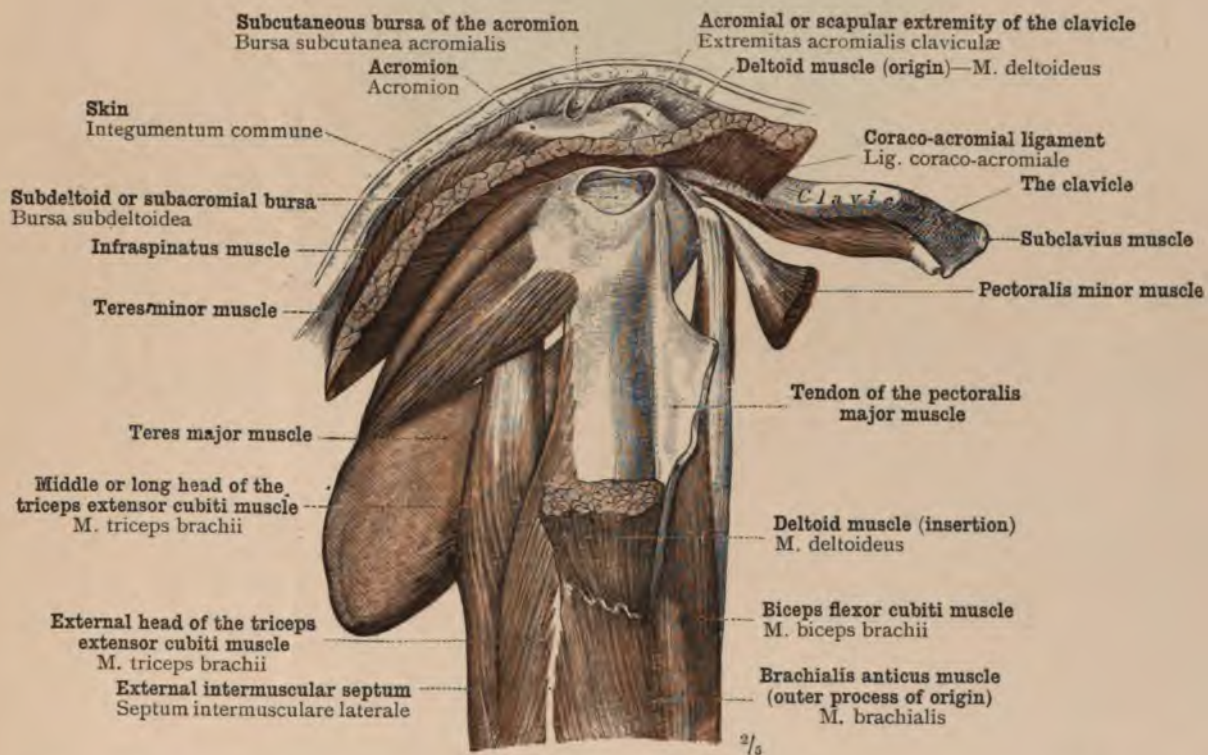
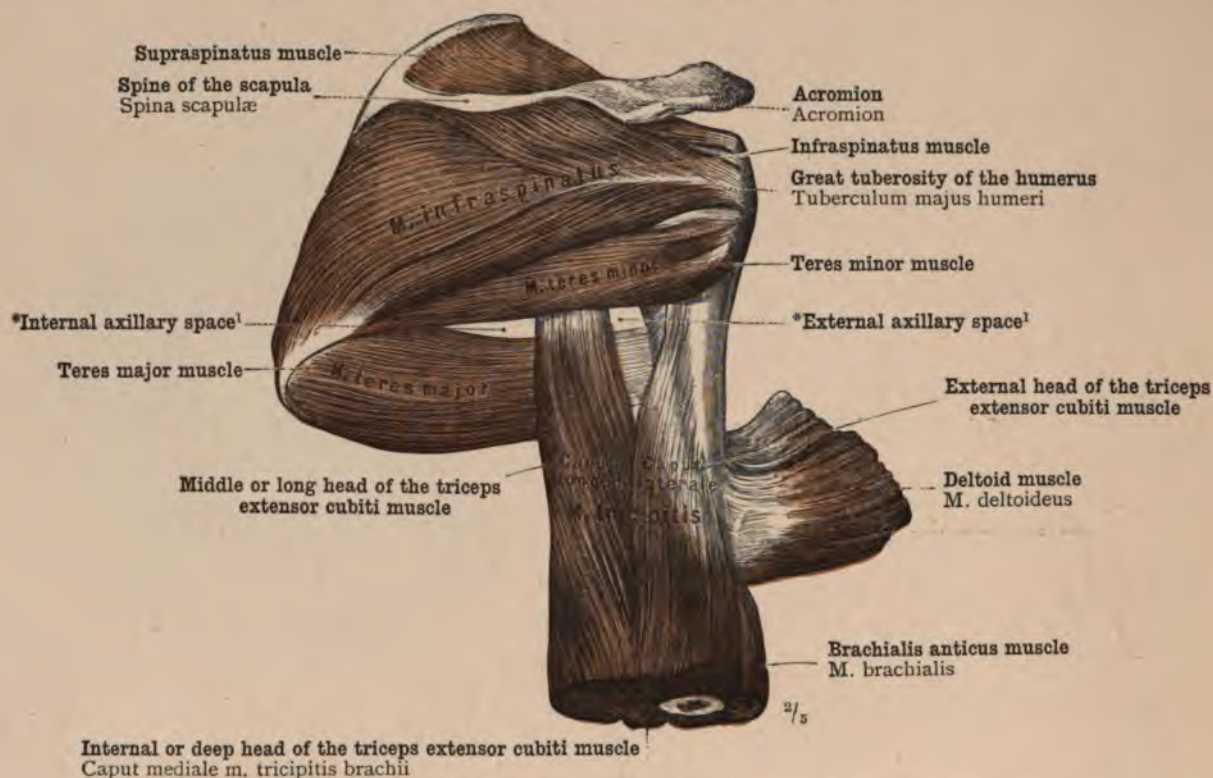
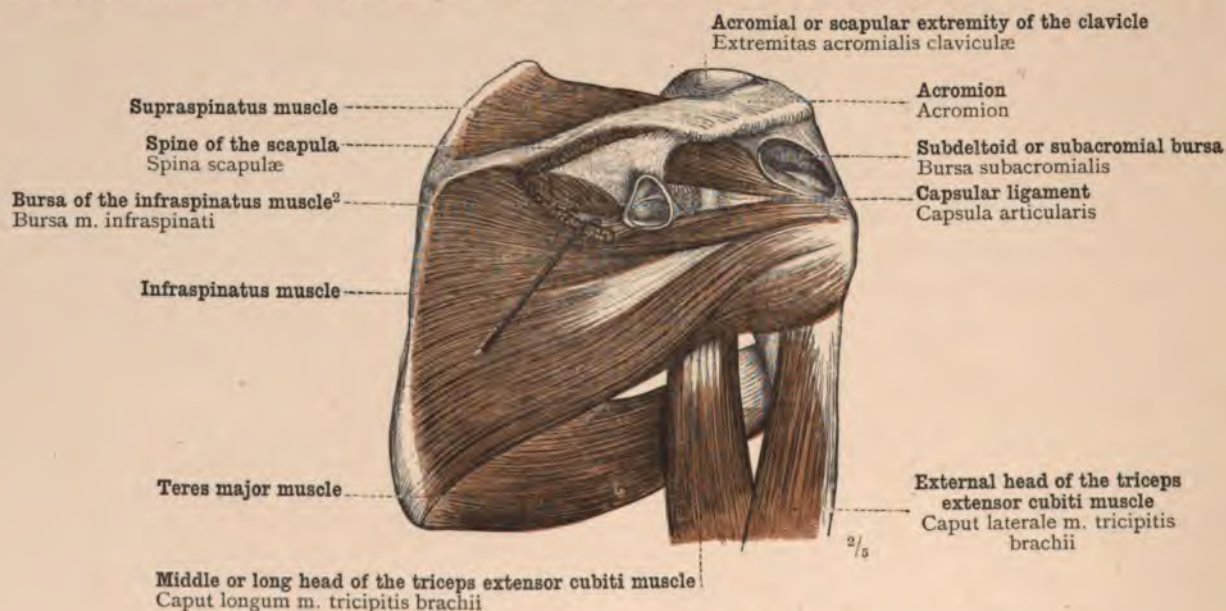


FIG. 558.—ARRANGEMENT OF THE MUSCLES ADJOINING THE RIGHT SHOULDER-JOINT AND IN THE PROXIMAL PORTION OF THE UPPER ARM, AS SEEN FROM THE OUTER SIDE, AFTER THE REMOVAL OF THE GREATER PART OF THE DELTOID MUSCLE. SUBDELTOID OR SUBACROMIAL BURSA AND SUBCUTANEOUS BURSA OF THE ACROMION.



¹ *Internal and External Axillary Spaces.*—Between the lower border of the teres minor muscle, the upper part of the humerus, and the axillary border of the scapula, covered in front by the subscapularis muscle and behind by the teres minor muscle, is a triangular space, divided, as shown in the figure, by the middle or long head of the triceps into an outer, quadrilateral, and an inner, triangular, compartment, called respectively by Toldt the internal and the external axillary space. These names are not in use in England, but are suitable, and may well be adopted. Through the external axillary space the posterior circumflex nerve and vessels pass backwards; and through the internal axillary space the dorsal branch of the subscapular artery passes round the margin of the scapula into the infraspinous fossa.—Tr.

FIG. 559.—MUSCLES OF THE RIGHT SHOULDER, SEEN FROM BEHIND: SUPRASPINATUS AND INFRASPINATUS MUSCLES; TERES MAJOR AND TERES MINOR MUSCLES; THE ADJOINING PARTS OF THE TRICEPS EXTENSOR CUBITI MUSCLE. THE *INTERNAL AND THE *EXTERNAL AXILLARY SPACE (see note above).



² The bursa of the infraspinatus muscle lies between the infraspinatus muscle and the capsular ligament of the shoulder-joint.—Tr.

FIG. 560.—IN A PREPARATION SIMILAR TO THAT LAST DESCRIBED, THE ORIGIN OF THE INFRASPINATUS MUSCLE WAS DETACHED FROM THE SPINE OF THE SCAPULA, TO SHOW THE BURSA BETWEEN THAT MUSCLE AND THE CAPSULE OF THE SHOULDER-JOINT. THE SUBDELTOID OR SUBACROMIAL BURSA HAS ALSO BEEN OPENED.

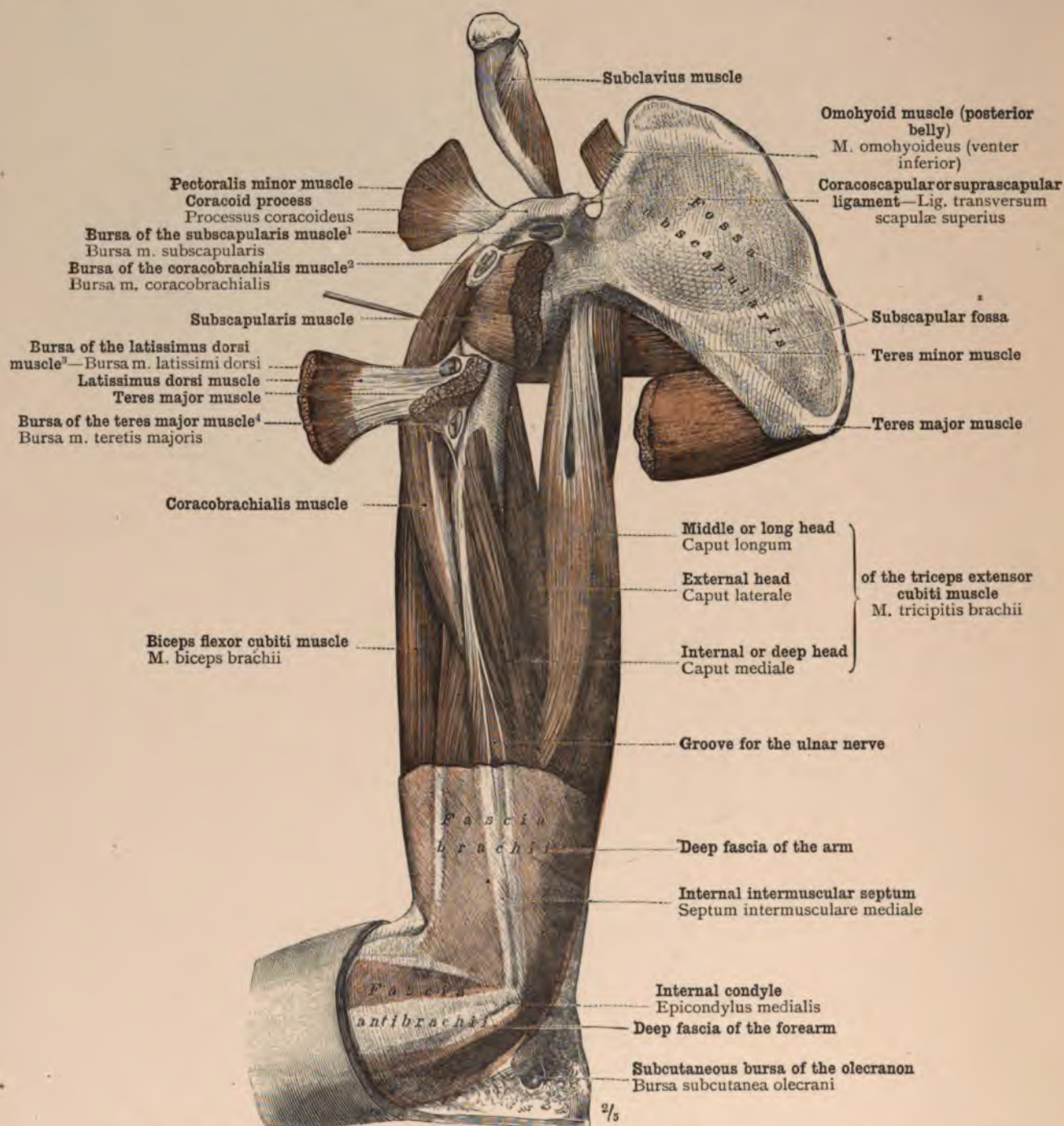
Musculi articulationis humeri—Muscles of the shoulder.



¹ The bursa of the subscapularis muscle is situated between the upper border and posterior surface of the subscapularis muscle and the coracoid process and neck of the scapula.—Tr.

² See note ¹ on p. 312.

FIG. 561.—MUSCLES OF THE RIGHT SHOULDER, SEEN FROM BEFORE. SUBSCAPULARIS MUSCLE, WITH ITS BURSA; SUPRASPINATUS MUSCLE; TERES MAJOR MUSCLE. ADJOINING PORTIONS OF THE MUSCLES OF THE UPPER ARM AND OF THE MUSCLES PASSING FROM THE TRUNK TO THE UPPER LIMB. THE *INTERNAL AND THE *EXTERNAL AXILLARY SPACE (see note ¹ on p. 312).



¹ See note ¹, p. 313.

² The bursa of the coracobrachialis muscle is situate between the anterior surface of the subscapularis muscle and the upper ends of the biceps and the coracobrachialis muscles.—Tr.

³ The bursa of the latissimus dorsi muscle is situate between the tendon of the latissimus dorsi muscle and that of the teres major muscle.—Tr.

⁴ The bursa of the teres major muscle is situate between the tendon of the teres major muscle and the humerus.—Tr.

FIG. 562.—ARRANGEMENT OF THE MUSCLES IN THE PROXIMAL PORTION OF THE RIGHT UPPER ARM, AND THE RELATION OF THESE MUSCLES TO THE INSERTIONS OF THE MUSCLES OF THE SHOULDER AND OF THE MUSCLES PASSING FROM THE TRUNK TO THE UPPER LIMB. SEEN FROM THE INNER SIDE. BURSAE OF THIS REGION. DISTAL PORTION OF THE DEEP FASCIA OF THE UPPER ARM AND PROXIMAL PORTION OF THE DEEP FASCIA OF THE FOREARM. SUBCUTANEOUS BURSA OF THE OLECRANON.

Musculi brachii—Muscles of the upper arm.

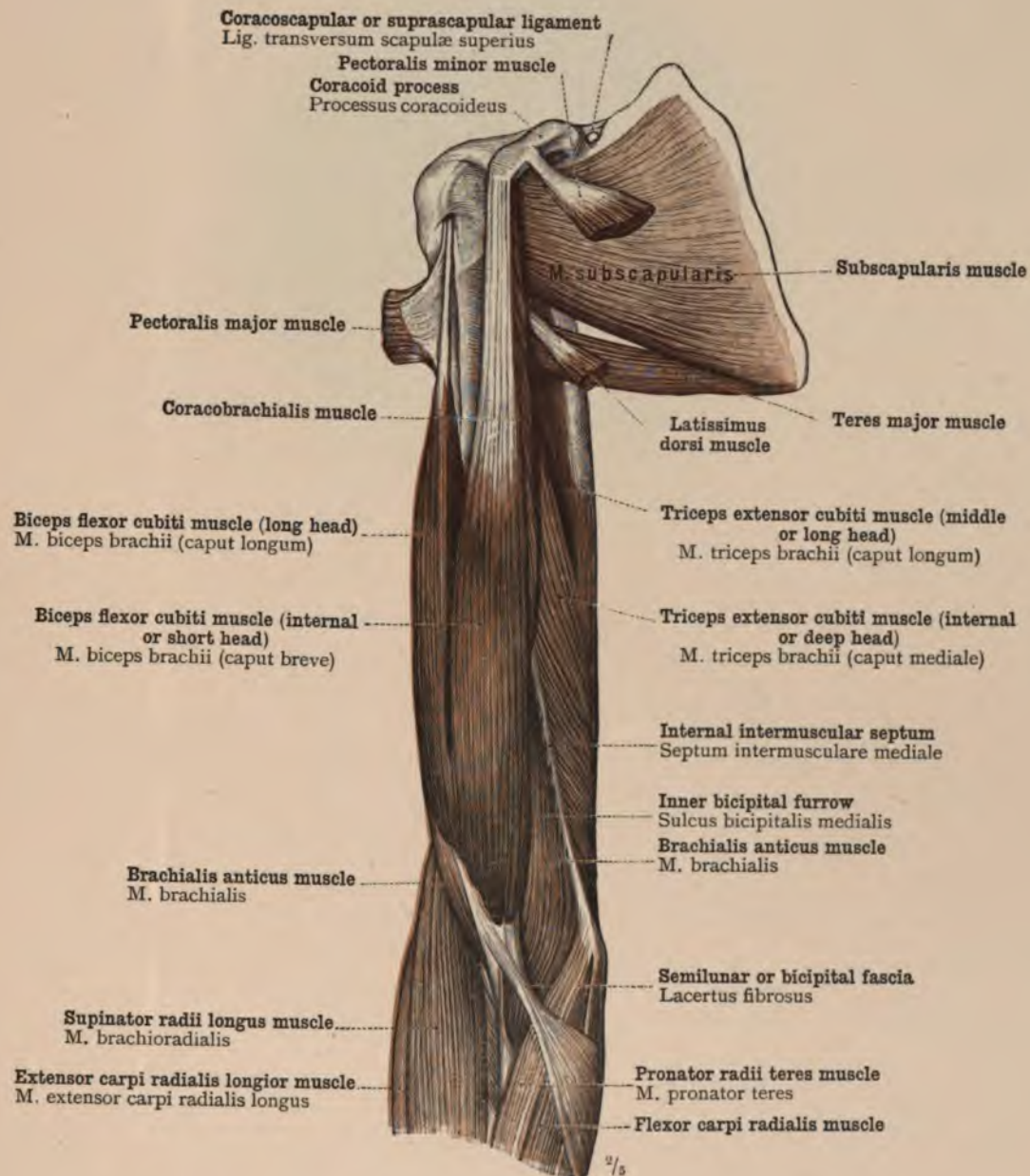
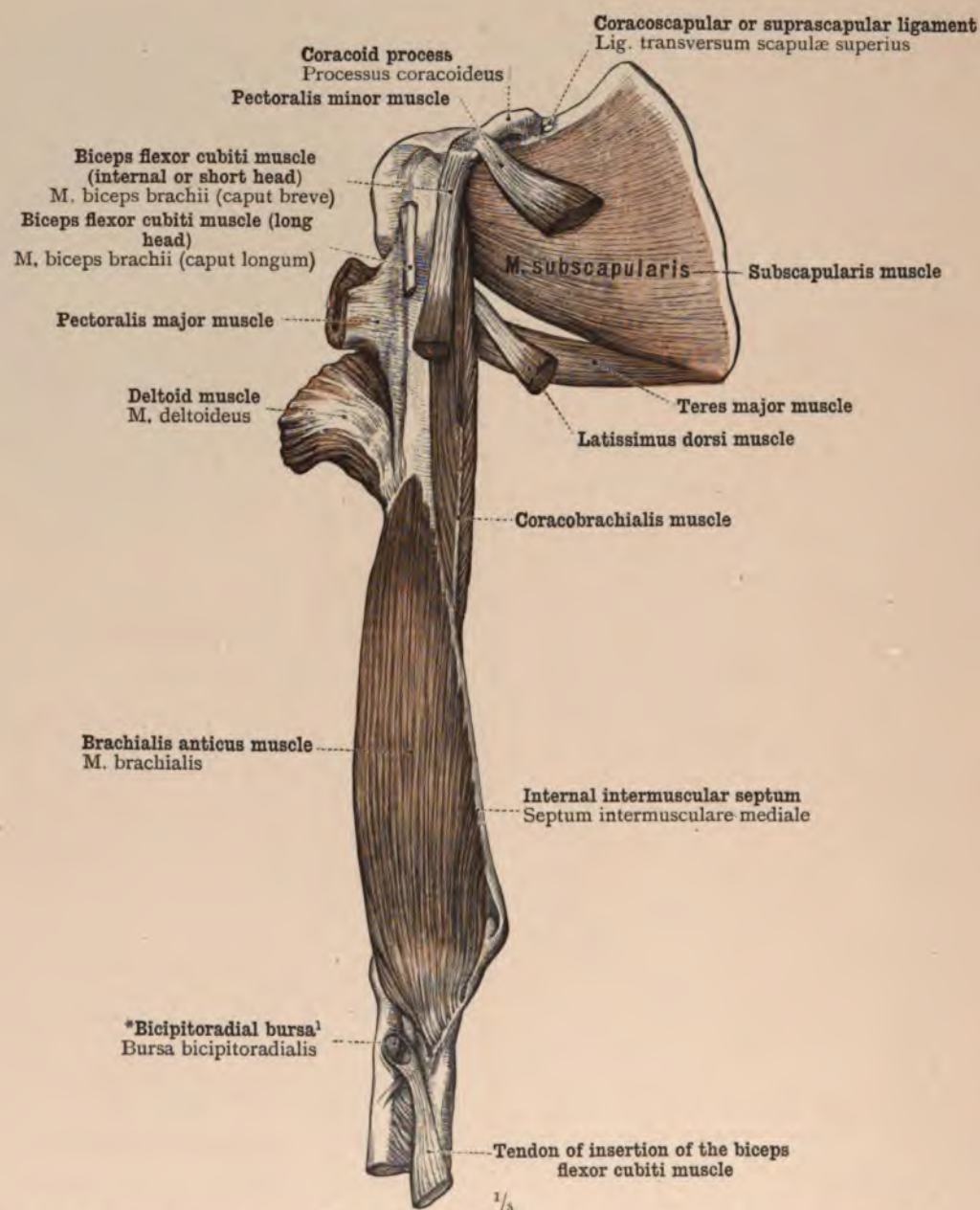


FIG. 563.—BICEPS FLEXOR CUBITI MUSCLE, OF THE RIGHT SIDE, AND ITS RELATIONS TO THE OTHER MUSCLES ON THE FLEXOR SIDE OF THE UPPER ARM, TO THE MUSCLES OF THE SHOULDER, TO THE MUSCLES PASSING FROM THE TRUNK TO THE UPPER LIMB, AND TO THE MUSCLES OF THE FOREARM.

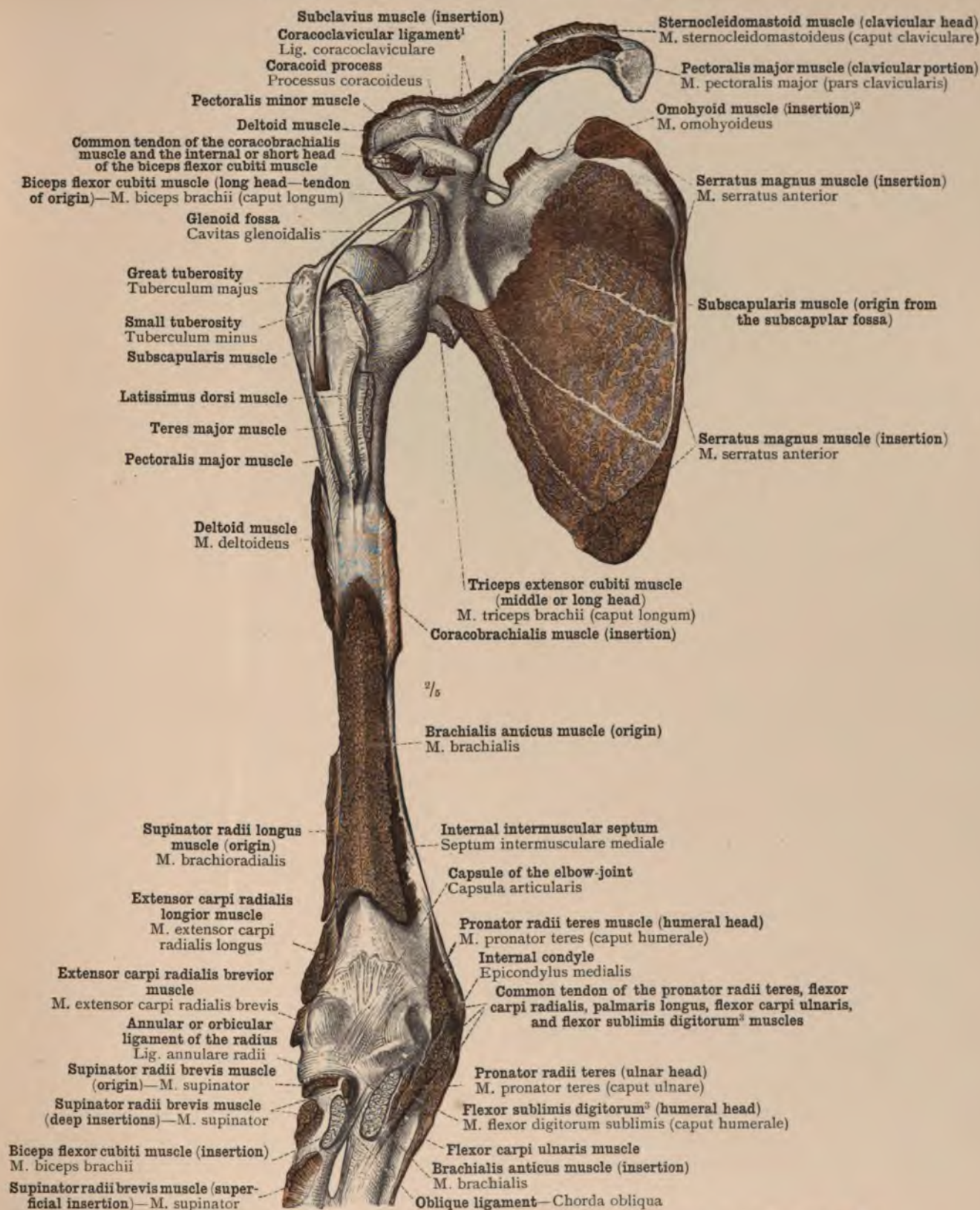


¹ This bursa is situated between the tendon of insertion of the biceps muscle and the anterior smooth portion of the tuberosity of the radius.—Tr.

FIG. 564.—THE MUSCLES OF THE ANTERIOR (FLEXOR) SIDE OF THE RIGHT UPPER ARM, AFTER REMOVAL OF THE BICEPS FLEXOR CUBITI MUSCLE. CORACOBRACHIALIS MUSCLE; BRACHIALIS ANTICUS MUSCLE.

The tendon of insertion of the biceps flexor cubiti muscle has been turned downwards, in order to display the *bicipitoradial bursa (see note above).

Musculi brachii—Muscles of the upper arm.



¹ This term, *coracoclavicular ligament*, is seldom used in England, where the two parts of which the ligament consists are more often separately described, as the *conoid ligament* and the *trapezoid ligament*, respectively. See Section II. of this work, p. 202, Fig. 435.—Tr.
² The scapular attachment of the omohyoid is by English anatomists regarded as the *origin* of that muscle.—Tr.
³ Or *flexor perforatus* muscle.

FIG. 565.—ATTACHMENT OF MUSCLES TO THE ANTERIOR SURFACES OF THE SCAPULA, THE HUMERUS, AND THE ELBOW.

Musculi brachii—Muscles of the upper arm.

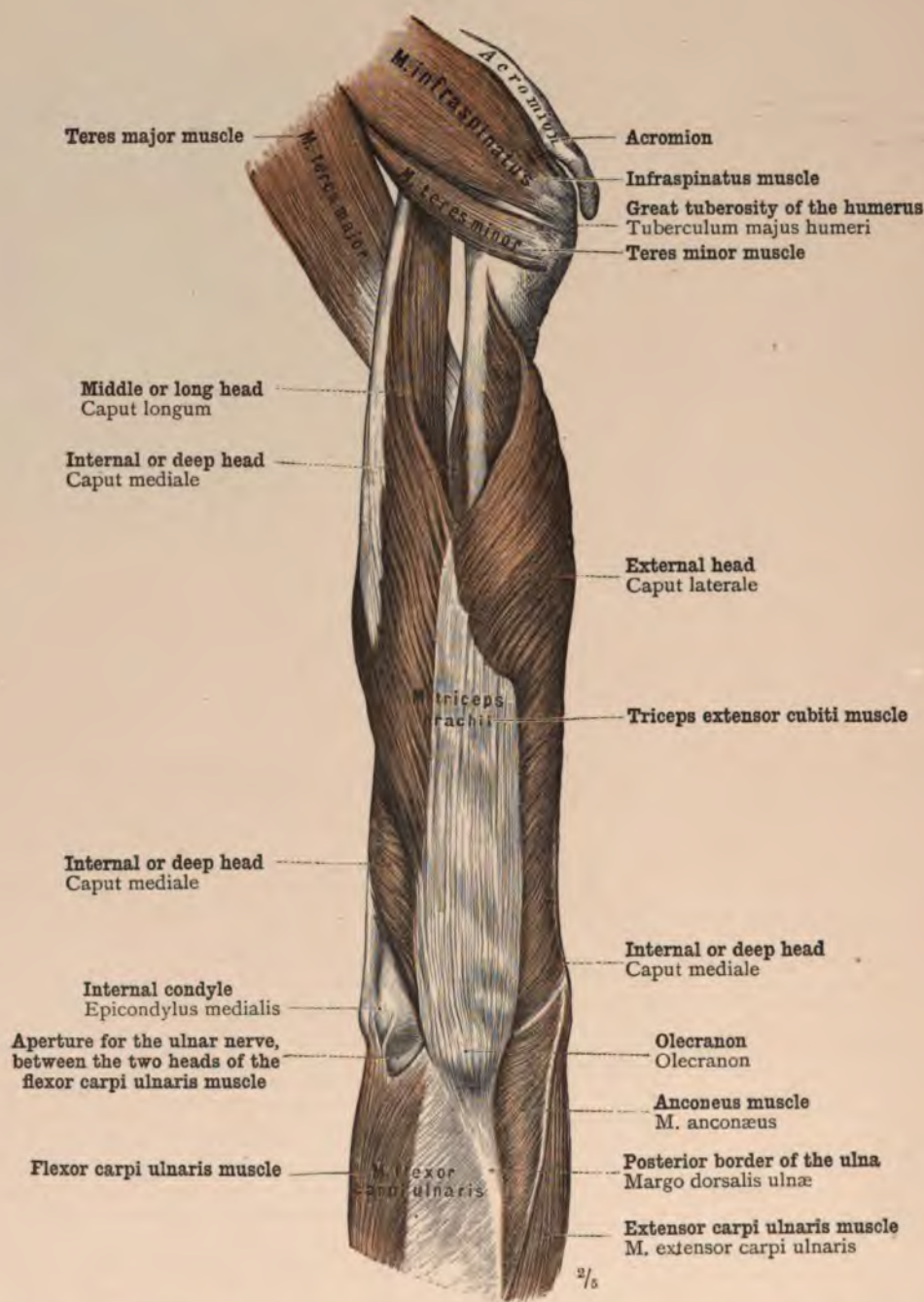
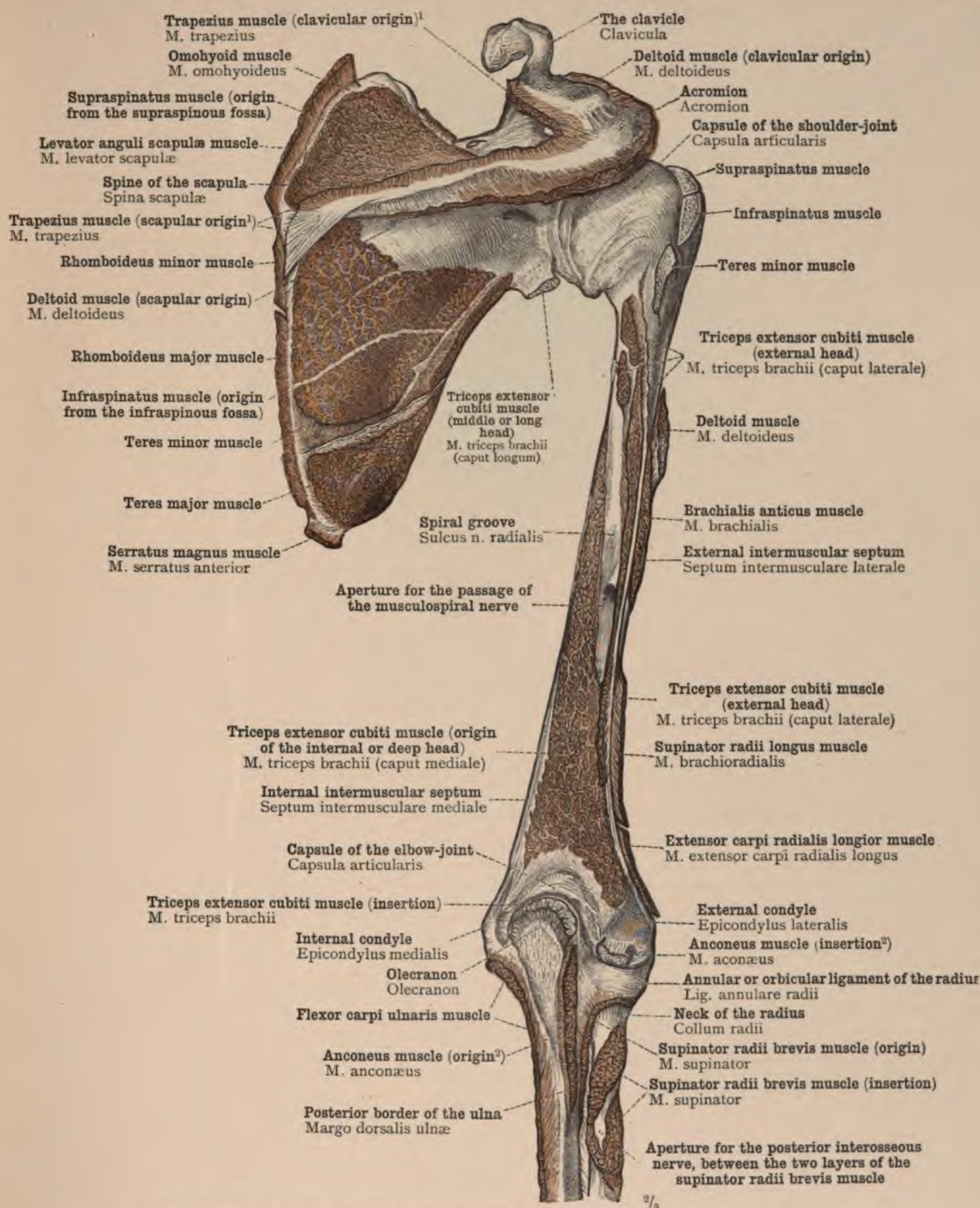


FIG. 566.—TRICEPS EXTENSOR CUBITI MUSCLE, OF THE RIGHT SIDE, SEEN FROM BEHIND; THE RELATIONS OF ITS PROXIMAL EXTREMITY TO THE MUSCLES OF THE SHOULDER, AND OF ITS DISTAL EXTREMITY TO THE MUSCLES OF THE FOREARM. ANCONÆUS MUSCLE.

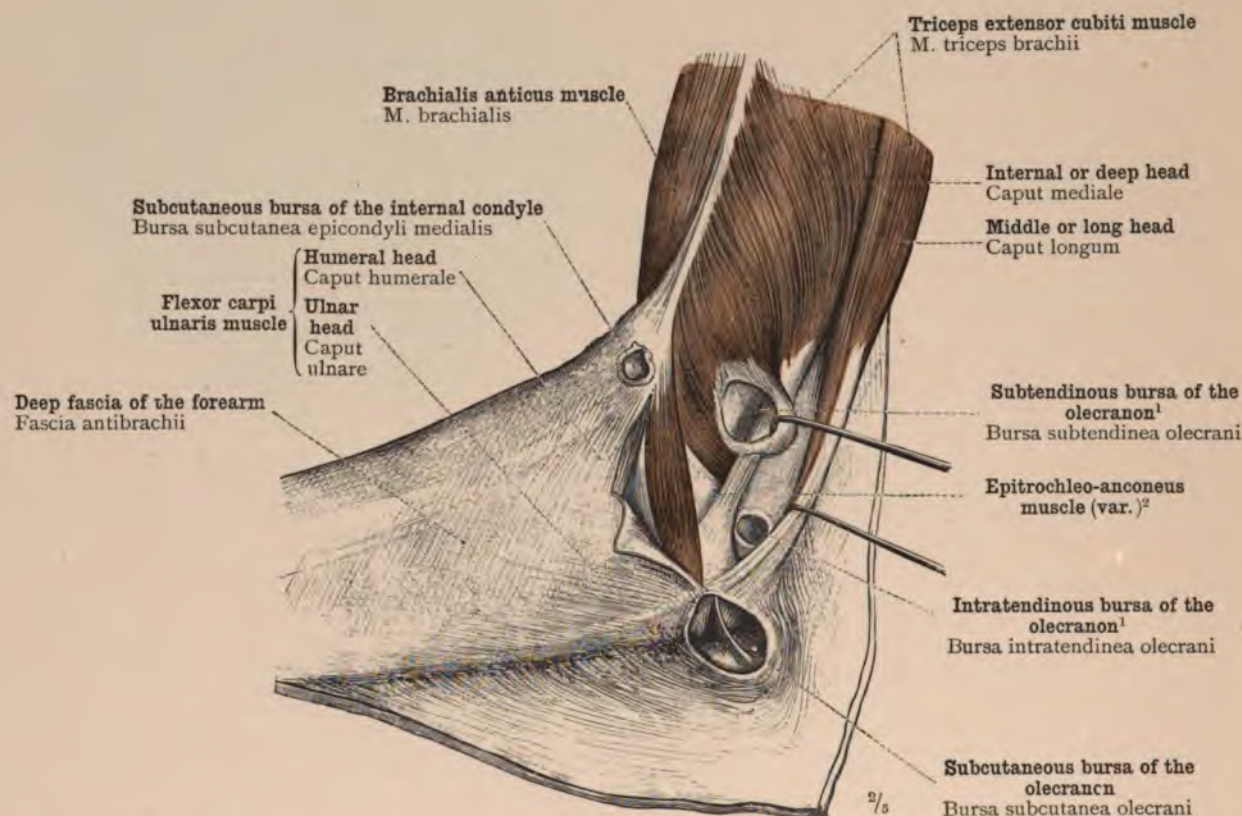
Musculi brachii—Muscles of the upper arm.



¹ Insertion of the trapezius muscle, according to English anatomists.
² English anatomists regard the humeral attachment of the anconeus muscle as the *origin*, and the ulnar attachment as the *insertion*, of that muscle.—Tr.

FIG. 567.—ATTACHMENT OF MUSCLES TO THE POSTERIOR SURFACES OF THE SCAPULA, THE HUMERUS, AND THE ELBOW.

Musculi brachii—Muscles of the upper arm.

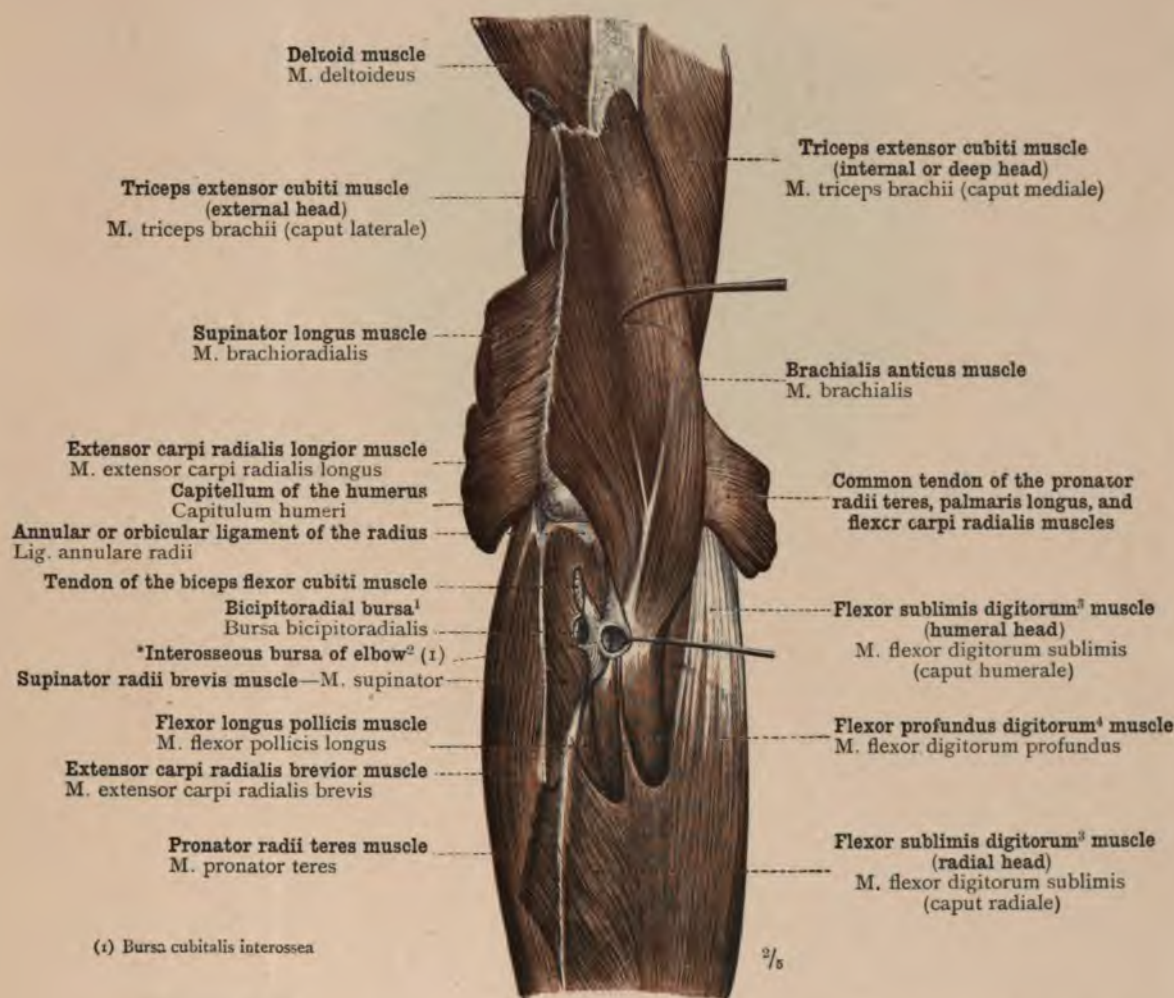


¹ Concerning these bursæ Quain writes ("Elements of Anatomy," 10th ed., vol. ii., Part II., p. 221): "In many cases there is a small bursa above the olecranon, either between the tendon of the triceps and the posterior ligament, or more frequently in the deep part of the tendon itself. A bursa behind the internal condyle, beneath the inner edge of the triceps and the ulnar nerve, is of rare occurrence."—Tr.

² The *epitrochleo-anconeus* is a small muscle often found, which arises from the posterior surface of the internal condyle of the humerus, and is inserted into the olecranon. It is superficial to the ulnar nerve. When absent, it is represented by a band of transverse fibres in the deep fascia of the arm.—Tr.

FIG. 568.—THE INNER SIDE OF THE RIGHT ELBOW WITH THE DISTAL EXTREMITY OF THE TRICEPS EXTENSOR CUBITI MUSCLE, THE ANOMALOUS EPITROCHLEO-ANCONÆUS MUSCLE, AND THE BURSÆ OF THIS REGION.

In order to display the intratendinous and the subtendinous bursæ of the olecranon, two longitudinal incisions have been made in the distal extremity of the triceps extensor cubiti muscle, and the posterior margins of the incisions have been retracted with hooks. In the region of the forearm the deep fascia has been left intact.



¹ See Note to p. 316.

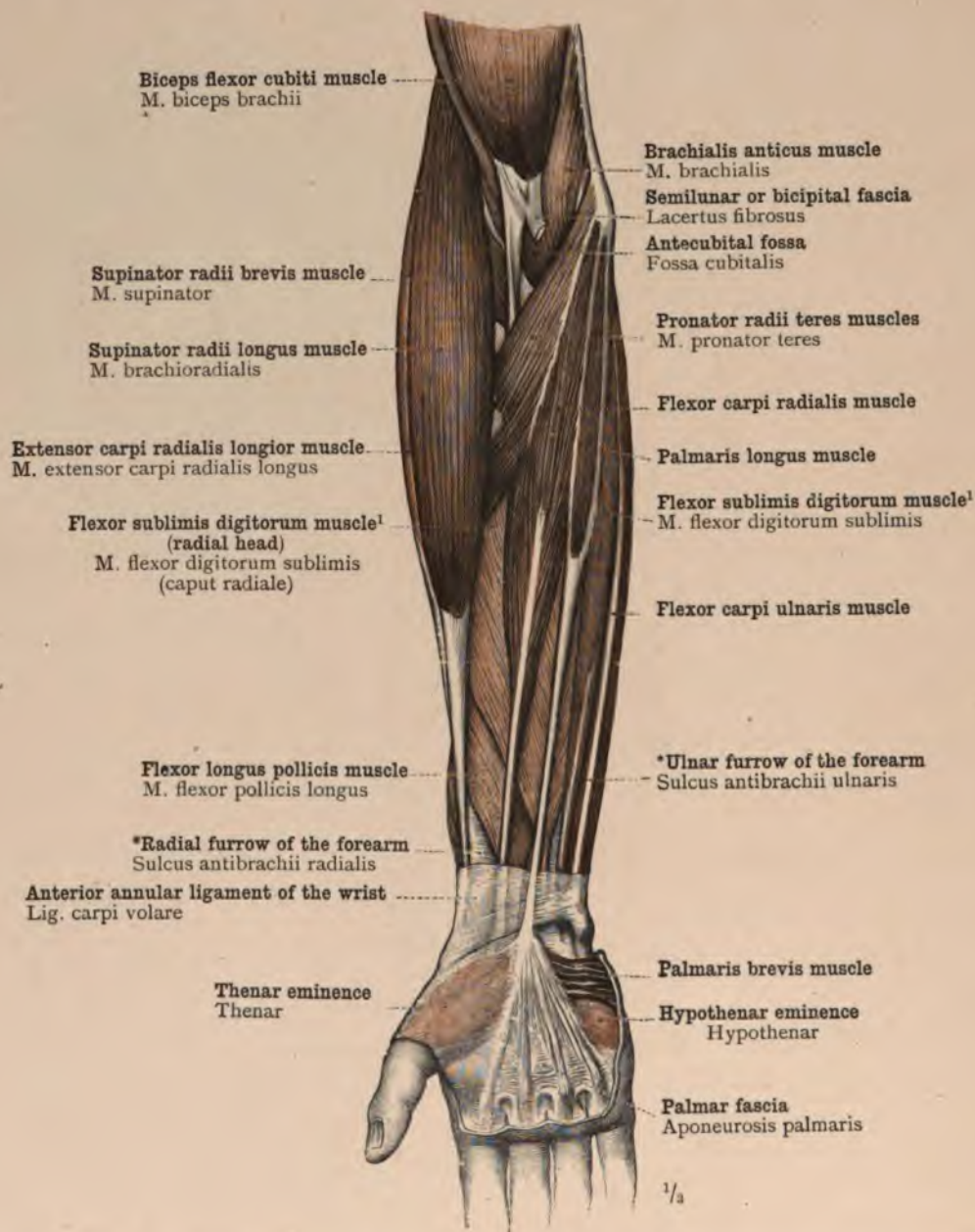
² *Interosseous Bursa of the Elbow.*—This bursa is situated in the bicipital hollow of the ulna, which lies below the small sigmoid cavity, bounded behind by the supinator ridge and in front by the upper extremity of the interosseous border. In pronation of the hands, the bicipital hollow lodges the tuberosity of the radius and the distal extremity of the biceps tendon; and the interosseous bursa forms a synovial cavity between the two bones. Behind, the sac is in contact with the interosseous membrane and the oblique ligament; projecting forward, it separates the tendon of the brachialis anticus on the inner side from the tendon of the biceps and the upper part of the insertion of the supinator radii brevis on the outer side. Thus the tendon of the biceps at its insertion lies between the bicipitoradial bursa and the interosseous bursa of the elbow. The condition known as "lawn-tennis elbow" depends on inflammation of one or both of these bursae.—Tr.

³ Or *flexor perforatus* muscle.

⁴ Or *flexor perforans* muscle.

FIG. 569.—THE ORIGIN OF THE PALMAR AND RADIAL MUSCLES OF THE RIGHT FOREARM, AND THEIR RELATIONS TO THE BRACHIALIS ANTICUS MUSCLE IN THE NEIGHBOURHOOD OF THE ANTECUBITAL FOSSA. ANTERIOR ASPECT, THE FOREARM BEING SUPINATED. THE BICIPITORADIAL BURSA (see note ¹ above) AND THE INTEROSSEOUS BURSA OF THE ELBOW (see note ² above).

The brachialis anticus muscle has been drawn slightly inwards. The two superficial muscles of the radial group, the supinator radii longus and the extensor carpi radialis longior, have been cut away, except for their proximal extremities, which have been turned outwards, in order to lay bare the deep layer of muscles of the radial group: these are the extensor carpi radialis brevior and the supinator radii brevis. The superficial layer of the palmar group of muscles has also been removed.

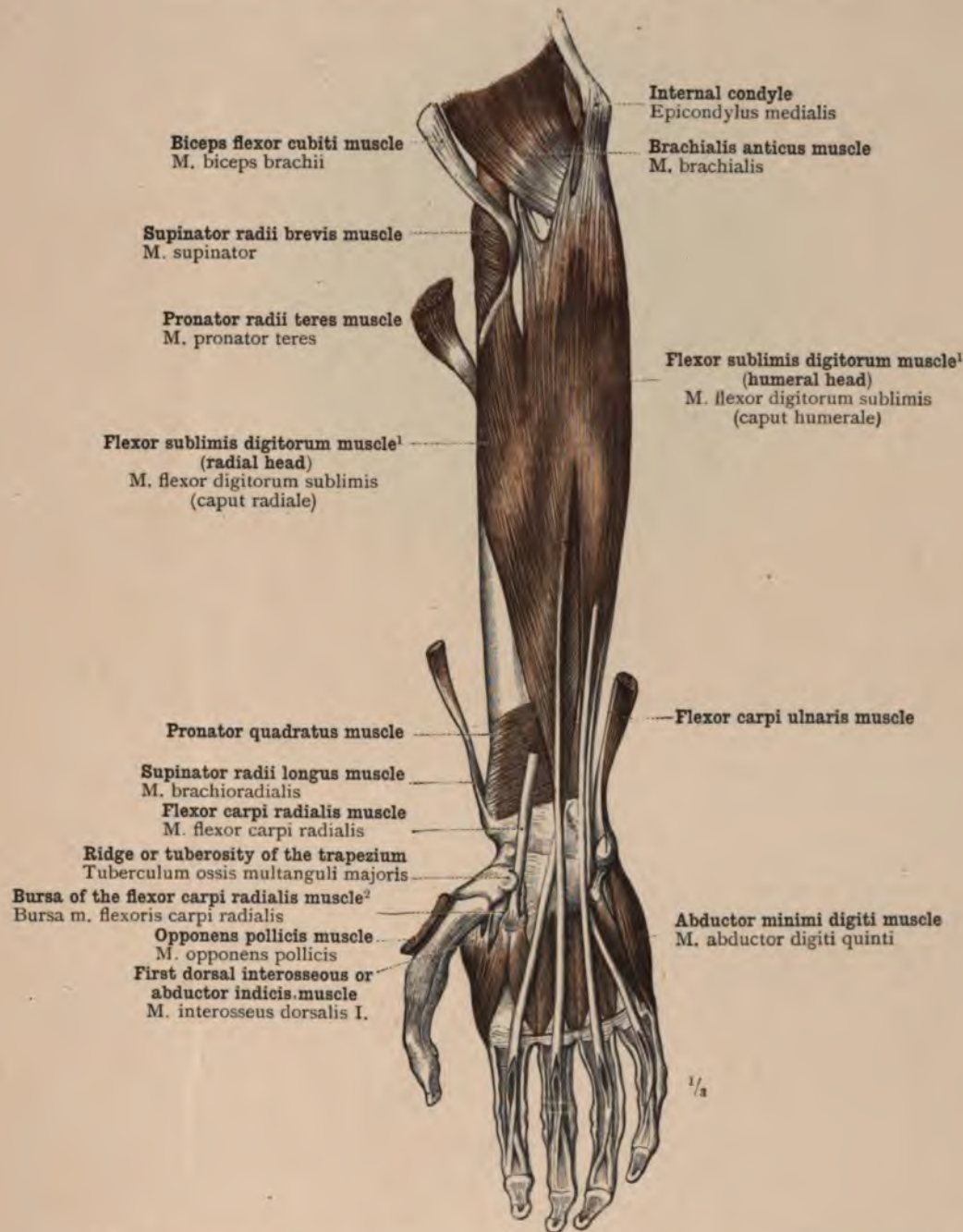


¹ Or *flexor perforatus* muscle.

² English anatomists group the pronator and flexor muscles of the forearm in *two* layers only: a *superficial*, comprehending the pronator radii teres, flexor carpi radialis, palmaris longus, and flexor sublimis digitorum muscles; and a *deep*, comprehending the flexor profundus digitorum, flexor longus pollicis, and pronator quadratus muscle. The author, however, groups these muscles in *four* layers, as enumerated in the description at the foot of Figs. 570, 571, and 572.—Tr.

FIG. 570.—THE SUPERFICIAL LAYER (see note ² above) OF THE PALMAR GROUP OF MUSCLES OF THE RIGHT FOREARM: PRONATOR RADII TERES MUSCLE, FLEXOR CARPI RADIALIS MUSCLE, PALMARIS LONGUS MUSCLE, FLEXOR CARPI ULNARIS MUSCLE. THE SUPERFICIAL LAYER OF THE RADIAL GROUP OF MUSCLES: SUPINATOR RADII LONGUS MUSCLE, AND A PORTION OF THE EXTENSOR CARPI RADIALIS LONGIOR MUSCLE. THE ANTECUBITAL FOSSA, AND THE ULNAR AND RADIAL FURROWS OF THE FOREARM. LIGAMENTUM CARPI VOLARE, THE ANTERIOR ANNULAR LIGAMENT OF THE WRIST, AND THE PALMAR FASCIA WITH THE PALMARIS BREVIS MUSCLE.

Musculi antibrachii—Muscles of the forearm.



¹ Or *flexor perforatus* muscle.

² This bursa lies beneath the tendon of the flexor carpi radialis muscle as it crosses the scaphoid bone and the trapezium.—Tr.

FIG. 571.—THE SECOND LAYER (see note ² to p. 322) OF THE PALMAR GROUP OF MUSCLES OF THE RIGHT FOREARM: FLEXOR SUBLIMIS DIGITORUM OR FLEXOR PERFORATUS MUSCLE. THE DISTAL ATTACHMENTS (INSERTIONS) OF THE TENDONS OF THE FLEXOR CARPI ULNARIS, FLEXOR CARPI RADIALIS, AND SUPINATOR RADII LONGUS MUSCLES. THE SUPERFICIAL MUSCLES OF THE HYPOTHENAR EMINENCE, AND THE INTEROSSEOUS MUSCLES OF THE HAND THAT ARE VISIBLE FROM THE PALMAR SIDE. THE BURSA OF THE FLEXOR CARPI RADIALIS MUSCLE (see note ² above).

After the removal of the muscles of the superficial layer and the anterior annular ligament of the wrist, the flexor sublimis digitorum muscle was laid bare. In order to show clearly the disposition of the tendons of the flexor sublimis digitorum muscle, the flexor profundus digitorum muscle was removed.



¹ Or *flexor perforans* muscle.

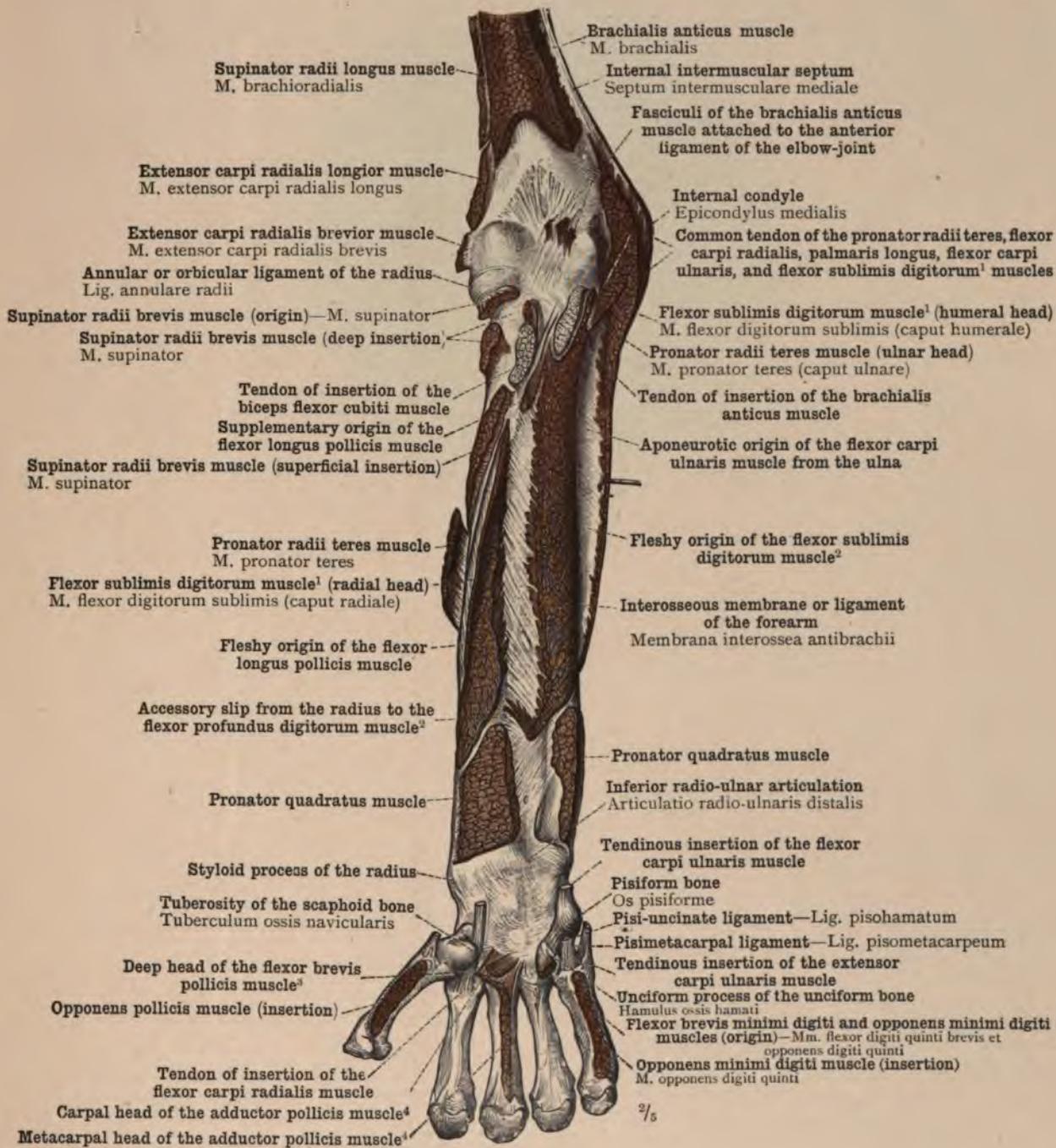
² The author adheres to the old nomenclature of the short muscles of the thumb, but that introduced by Cunningham is now generally adopted by English anatomists. Following this writer, the former *adductor pollicis* is called the *adductor pollicis transversus*, and what used to be called the *deep head* of the *flexor brevis pollicis* muscle is divided into two parts. The larger part, known as the *adductor obliquus pollicis*, the largest of the thumb muscles, consists of several slips arising from the upper ends of the second and third metacarpal bones, the os magnum, the anterior carpal ligaments, and the sheath of the flexor carpi radialis muscle; the muscle is inserted, in common with the adductor transversus and the deep head of the flexor brevis, into the inner side of the base of the first phalanx of the thumb. What is now termed the *deep head* of the *flexor brevis pollicis* is a very small slip, deeply placed between the adductor obliquus pollicis and the outer head of the adductor indicis. It arises from the ulnar side of the upper part of the first metacarpal bone, and is inserted as already described.—TR. See also Figs. 573, 585, and 586.

³ Or *flexor perforans* muscle.

⁴ See note 3 to p. 334.

FIG. 572.—THE THIRD LAYER OF THE PALMAR GROUP OF MUSCLES OF THE RIGHT FOREARM, AFTER THE FIRST AND SECOND LAYERS AND THE ANTERIOR ANNULAR LIGAMENT OF THE WRIST HAVE BEEN REMOVED: FLEXOR PROFUNDUS DIGITORUM OR FLEXOR PERFORANS MUSCLE, AND FLEXOR LONGUS POLLICIS MUSCLE. IN THE FOURTH LAYER WE SEE A PORTION OF THE PRONATOR QUADRATUS MUSCLE. LUMBRICALES MUSCLES, AND THE SUPERFICIAL MUSCLES OF THE THENAR AND HYPOTHENAR EMINENCES: ABDUCTOR BREVIS POLLICIS, ABDUCTOR POLLICIS (see note ² above), FLEXOR BREVIS POLLICIS, FLEXOR BREVIS MINIMI DIGITI AND ABDUCTOR MINIMI DIGITI MUSCLES.

Musculi antibrachii—Muscles of the forearm.



¹ Or *flexor perforatus* muscle.

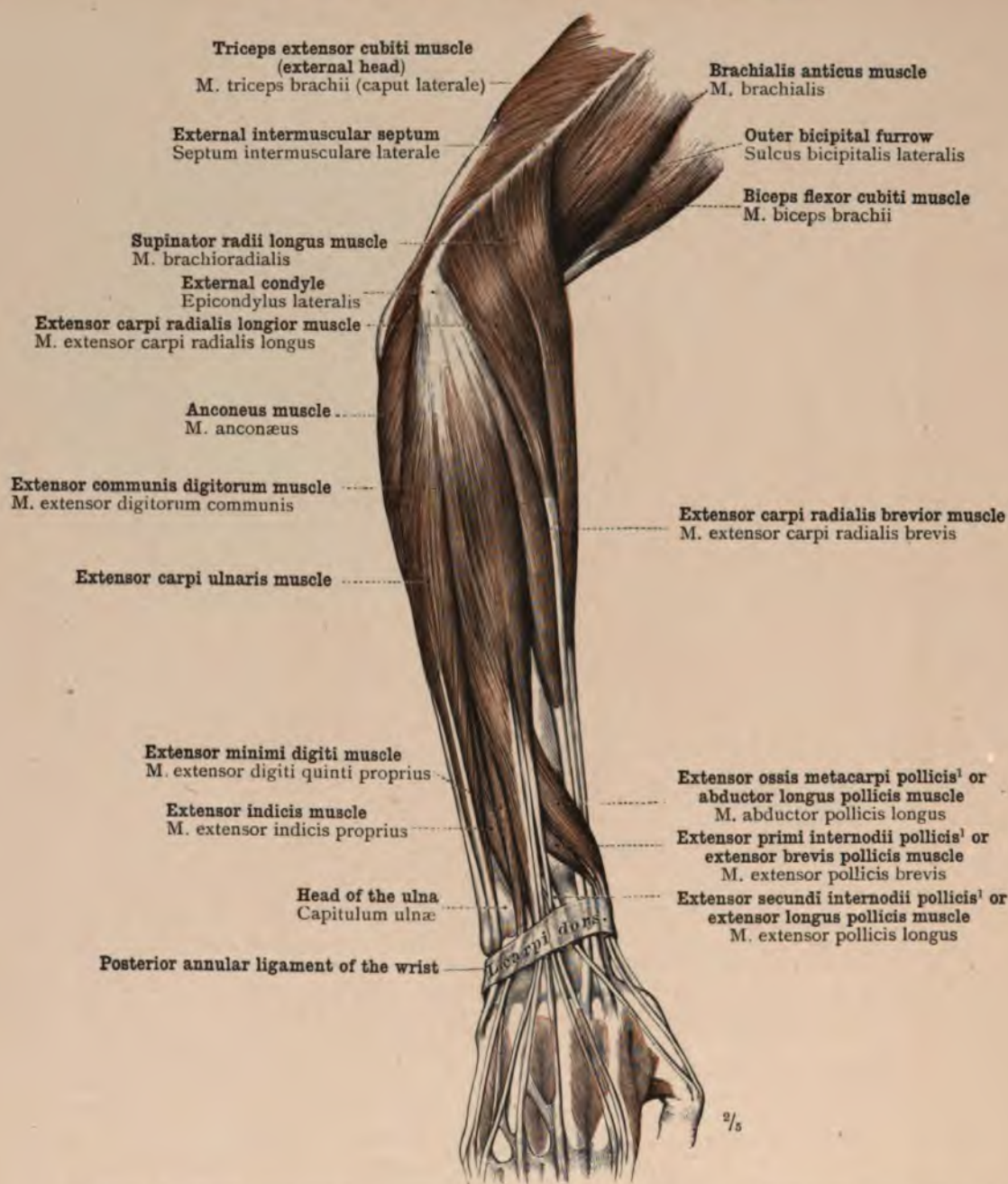
² Or *flexor perforans* muscle.

³ See note ² to p. 324.

⁴ What the author calls the *carpal head of the adductor pollicis* muscle is part of the *adductor pollicis obliquus* according to Cunningham, whilst what he calls the *metacarpal head of the adductor pollicis* is the *adductor pollicis transversus* of English anatomists. See note ² to p. 324.

FIG. 573.—ATTACHMENT OF MUSCLES TO THE PALMAR SURFACE OF THE FOREARM AND THE HAND.

Musculi antibrachii—Muscles of the forearm.



I have given the preference to the old names, as more distinctive and therefore more suitable, of the three extensor muscles of the thumb, *extensor ossis metacarpi pollicis*, *extensor primi internodii pollicis*, and *extensor secundi internodii pollicis*. Quain ("Anatomy," 10th ed.) has, however, adopted the Continental nomenclature in the case of the two latter muscles, which he terms respectively *extensor brevis pollicis* and *extensor longus pollicis*, whilst yet other names have been adopted by Macalister, who terms the extensor of the first phalanx, *extensor pollicis minor*, and the extensor of the second phalanx *extensor pollicis major*. The names used in the text are, however, more familiar to students, both in England and America, and there seems no good reason for any change.

While speaking of these muscles, it may be mentioned that their tendons, viz., those of the *extensor ossis metacarpi pollicis* and *extensor primi internodii pollicis* on the radial side, and that of the *extensor secundi internodii pollicis* on the ulnar side, bound the deep hollow to be seen on the outer (radial) side of the wrist and behind the metacarpal bone of the thumb, when this member is fully extended. This hollow is known as the *tabatière anatomique*, or *anatomical snuff-box* (called by Toldt *foveola radialis*, see Fig. 575). Beneath the tendons of the extensors of the thumb, and across the intervening hollow, the radial artery passes from the front to the back of the wrist, its direction being indicated by a line from the front of the styloid process of the radius to the proximal end of the first interosseous space; and the artery is crossed by the superficial radial vein, which usually forms a distinct prominence in the hollow between the tendons.—Tr.

² By English anatomists the supinator and extensor muscles are, like those of the front of the forearm, divided simply into two layers; a *superficial*, containing seven muscles, viz., the supinator radii longus, extensor carpi radialis longior, extensor carpi radialis brevis, extensor communis digitorum, extensor minimi digiti, extensor carpi ulnaris, and anconeus muscles; and a *deep* layer, containing five muscles, viz., the supinator radii brevis, extensor ossis metacarpi pollicis, extensor primi internodii pollicis, extensor secundi internodii pollicis, and extensor indicis muscles. The author's classification of these muscles is to be found in the description at the foot of Figs. 574, 575, and 576.—Tr.

FIG. 574.—THE SUPERFICIAL LAYER (see note ² above) OF THE DORSAL GROUP OF MUSCLES OF THE RIGHT FOREARM: EXTENSOR COMMUNIS DIGITORUM, EXTENSOR CARPI ULNARIS, AND ANCONÆUS MUSCLES. THE RADIAL GROUP OF MUSCLES SEEN FROM THE DORSAL SIDE, AND THE DEEP LAYER OF MUSCLES OF THE DORSAL GROUP THAT ARE VISIBLE IN THE DISTAL PORTION OF THE FOREARM BETWEEN THE SUPERFICIAL LAYER OF DORSAL MUSCLES AND THE RADIAL MUSCLES: EXTENSOR CARPI RADIALIS LONGIOR AND EXTENSOR CARPI RADIALIS BREVIOR (MUSCLES OF THE RADIAL GROUP); EXTENSOR OSSIS METACARPI POLLICIS, EXTENSOR PRIMI INTERNODII POLLICIS, AND EXTENSOR SECUNDI INTERNODII POLLICIS (MUSCLES OF THE DEEP DORSAL LAYER). LIGAMENTUM CARPI DORSALE, THE POSTERIOR ANNULAR LIGAMENT OF THE WRIST.

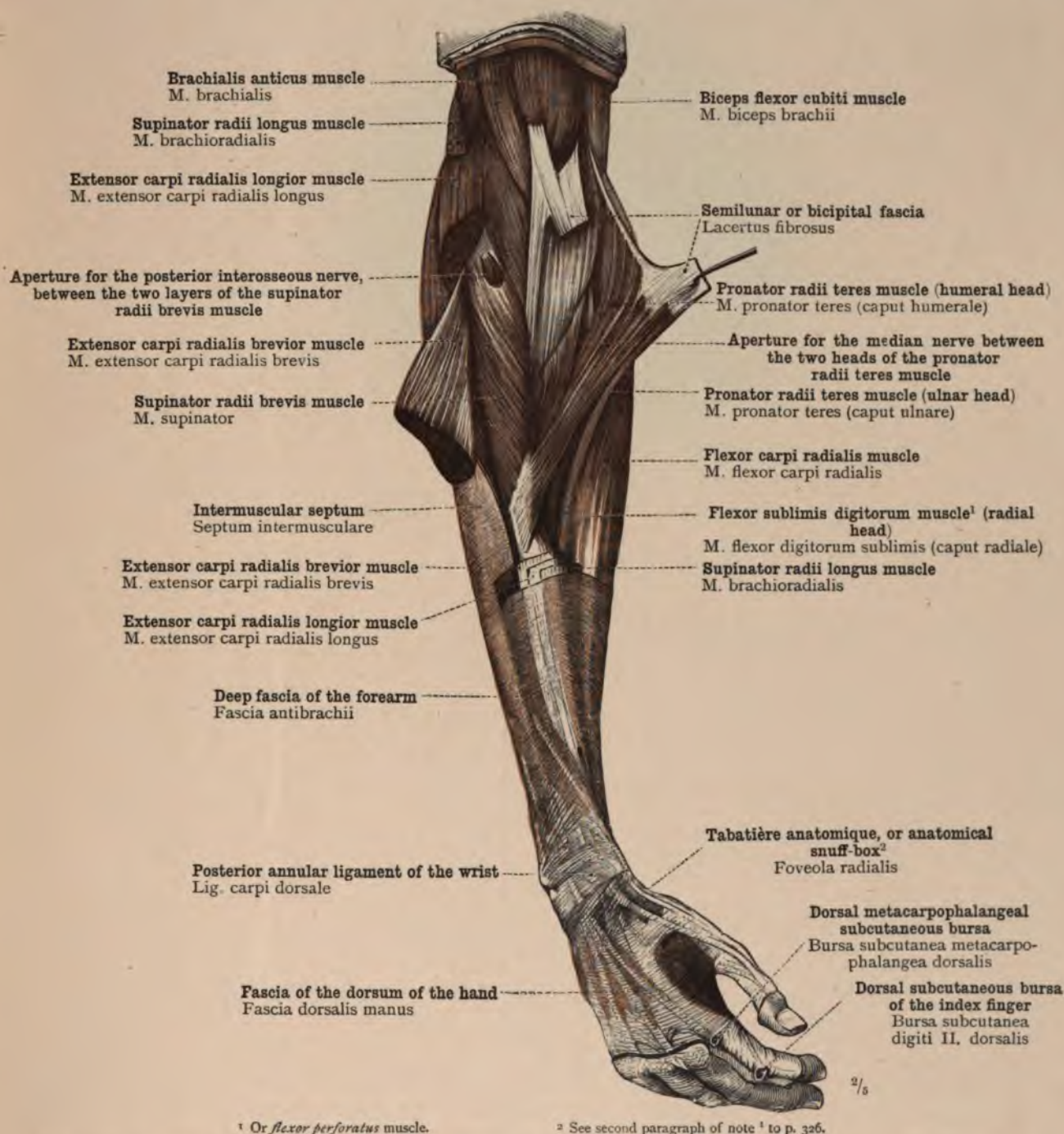


FIG. 575.—THE ARRANGEMENT OF THE MUSCLES IN THE DEEPER PART OF THE ANTECUBITAL FOSSA WHEN THE HAND IS PRONATED.

The muscles of the radial group, with the exception of the deepest of these, the supinator radii brevis, have been partly removed. The semilunar or bicipital fascia has been cut across, and its distal extremity has been drawn inwards together with the pronator radii teres muscle, in order to display the ulnar head of this muscle. In this distal half of the forearm and on the back of the hand we see the deep fascia and the posterior annular ligament of the wrist.

Musculi antibrachii—Muscles of the forearm.

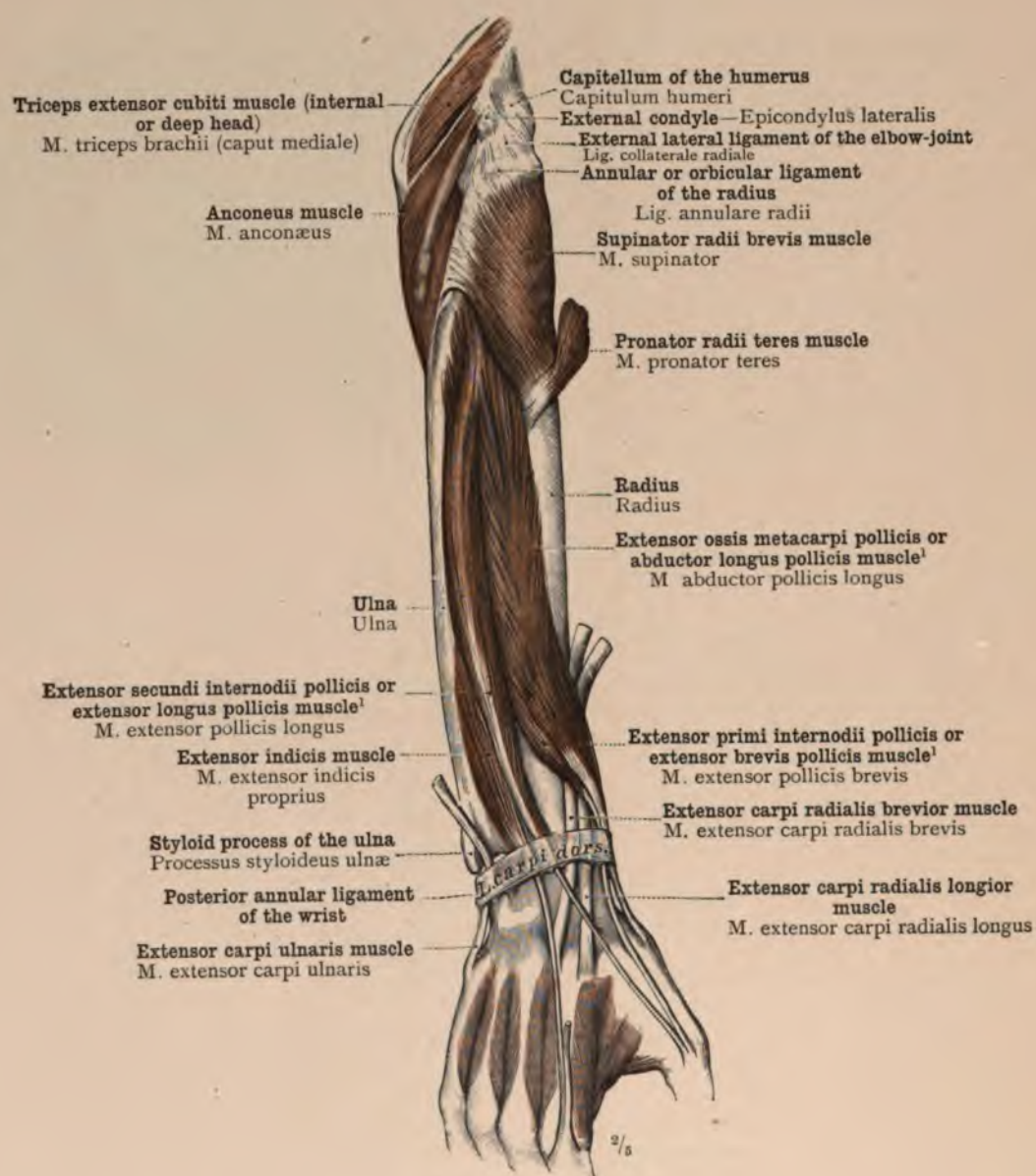
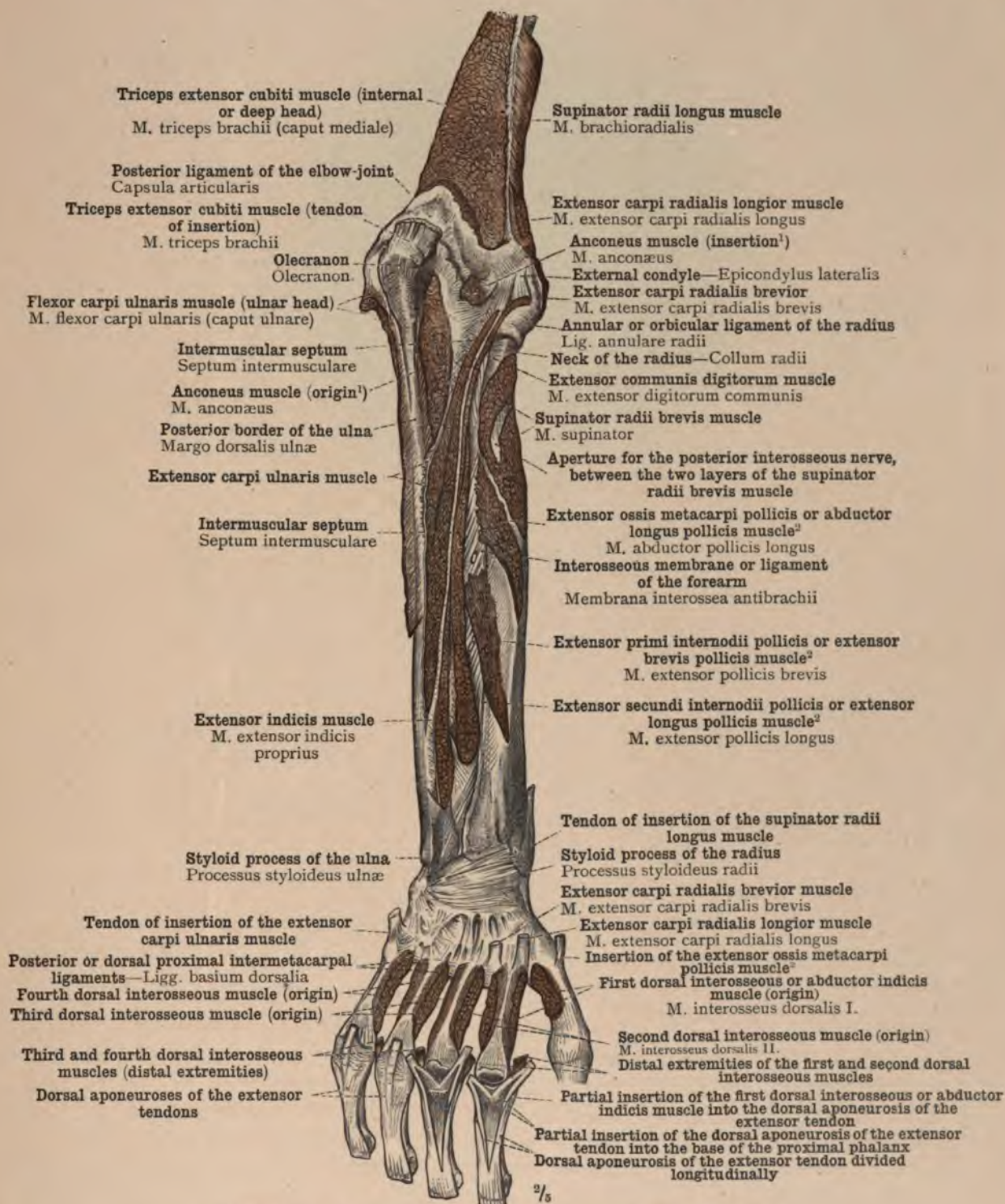


FIG. 576.—THE DEEP LAYER OF THE DORSAL GROUP OF MUSCLES OF THE RIGHT FOREARM, DISPLAYED BY THE REMOVAL OF THE EXTENSOR COMMUNIS DIGITORUM AND THE EXTENSOR CARPI ULNARIS MUSCLES: EXTENSOR OSSIS METACARPI POLLICIS, EXTENSOR PRIMI INTERNODII POLLICIS, EXTENSOR SECUNDI INTERNODII POLLICIS, AND EXTENSOR INDICIS MUSCLES.

In the proximal segment of the pronated forearm, the supinator radii brevis muscle and the anconeus muscle are seen.

Musculi antibrachii—Muscles of the forearm.



¹ See note ² to p. 319.

² See note ¹ to p. 325.

FIG. 577.—ATTACHMENT OF MUSCLES TO THE DORSAL SURFACE OF THE FOREARM AND THE HAND.

Musculi antibrachii—Muscles of the forearm.



¹ See note ¹ to p. 326.

FIG. 578.—THE DISPOSITION OF THE EXTENSOR TENDONS AT THE BACK OF THE WRIST AND HAND, AND THE SYNOVIAL SHEATHS OF THESE TENDONS. RIGHT HAND. THE CONNEXIONS BETWEEN THE EXTENSOR TENDONS (VINCULA) ON THE DORSUM OF THE HAND, AND THE DORSAL APONEUROSES OF THE EXTENSOR TENDONS. THE INTERMETACARPOPHALANGEAL BURSÆ, THE DORSAL SUBCUTANEOUS METACARPOPHALANGEAL BURSÆ, AND THE DORSAL SUBCUTANEOUS BURSÆ OF THE FINGERS. THE DORSAL INTEROSSEOUS MUSCLES.

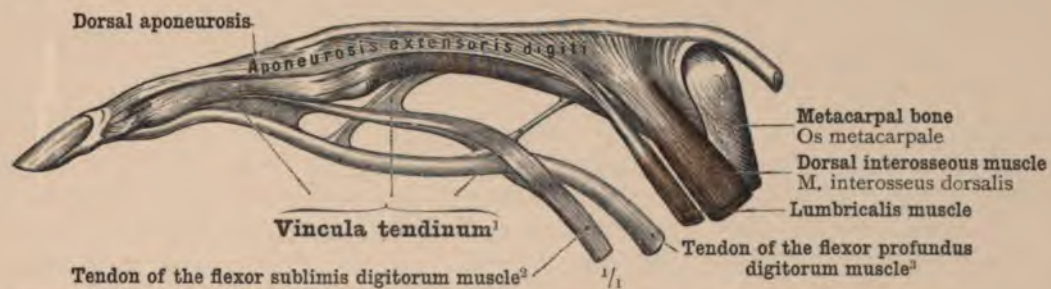
The synovial sheaths of the tendons were injected with strong alcohol before dissection. A portion of the posterior wall has been removed from the synovial sheath of the tendons of the extensor communis digitorum and extensor indicis muscles.

Musculi manus—Muscles of the hand.

¹ See note ¹ to p. 326.² This bursa is situated beneath the tendon close to its insertion.—Tr.³ See note ² to p. 324.

FIG. 579.—THE DORSAL APONEUROSES OF THE EXTENSOR TENDONS. RIGHT HAND. DORSAL INTEROSSEOUS MUSCLES.

The osseo-fibrous canals for the extensor tendons have been opened by the removal of the posterior annular ligament of the wrist. The distal extremity of the tendon of the extensor carpi radialis brevior muscle has been turned downwards, in order to display the bursa that lies beneath it.



¹ *Vincula Tendinum*.—These are folds of synovial membrane, connecting the flexor tendons to one another and to the phalanges. Their nomenclature is somewhat variable. Macalister writes (*op. cit.*, p. 308): "The synovial membrane of the digital sheath enwraps the two tendons at first, and the deep tendon is tied to the bone by one or two flat bands (*retinacula*). Where the tendons pass each other they are generally free, but when the deep tendon has passed through, it is tied to the superficial tendon, now underlying it, by a soft round cord (*vinculum*). Finally the deep tendon is tied to the distal end of the second phalanx by a flat *retinaculum inferius*." According to Quain (*op. cit.*, vol. ii., p. 228), "The synovial membrane forms small folds (*vincula accessoria tendinum*) between the tendons and the bones. There are two sets of these: the one, *ligamenta brevia*, broad and membranous, passing between the tendons near their insertion and the lower part of the phalanx immediately above; the other, *ligamenta longa*, slender and less constant bands, joining the tendons at a higher level. Contained in the ligamentum breve of the deep flexor is a small band of yellow elastic tissue (*vinculum subflavum*), which stretches from the tendon to the head of the second phalanx, and may assist in drawing down the tendon after flexion of the fingers."—Tr.

² Or *flexor perforatus* muscle.³ Or *flexor perforans* muscle.FIG. 580.—THE DISTAL EXTREMITIES OF THE FLEXOR AND EXTENSOR TENDONS OF THE RIGHT MIDDLE FINGER SEEN FROM THE RADIAL SIDE. THE RELATION OF THE LUMBRICALIS AND OF THE INTEROSSEOUS MUSCLE TO THE DORSAL APONEUROSIS OF THE EXTENSOR TENDON. VINCULA TENDINUM (see note ¹ above).

Musculi manus—Muscles of the hand.

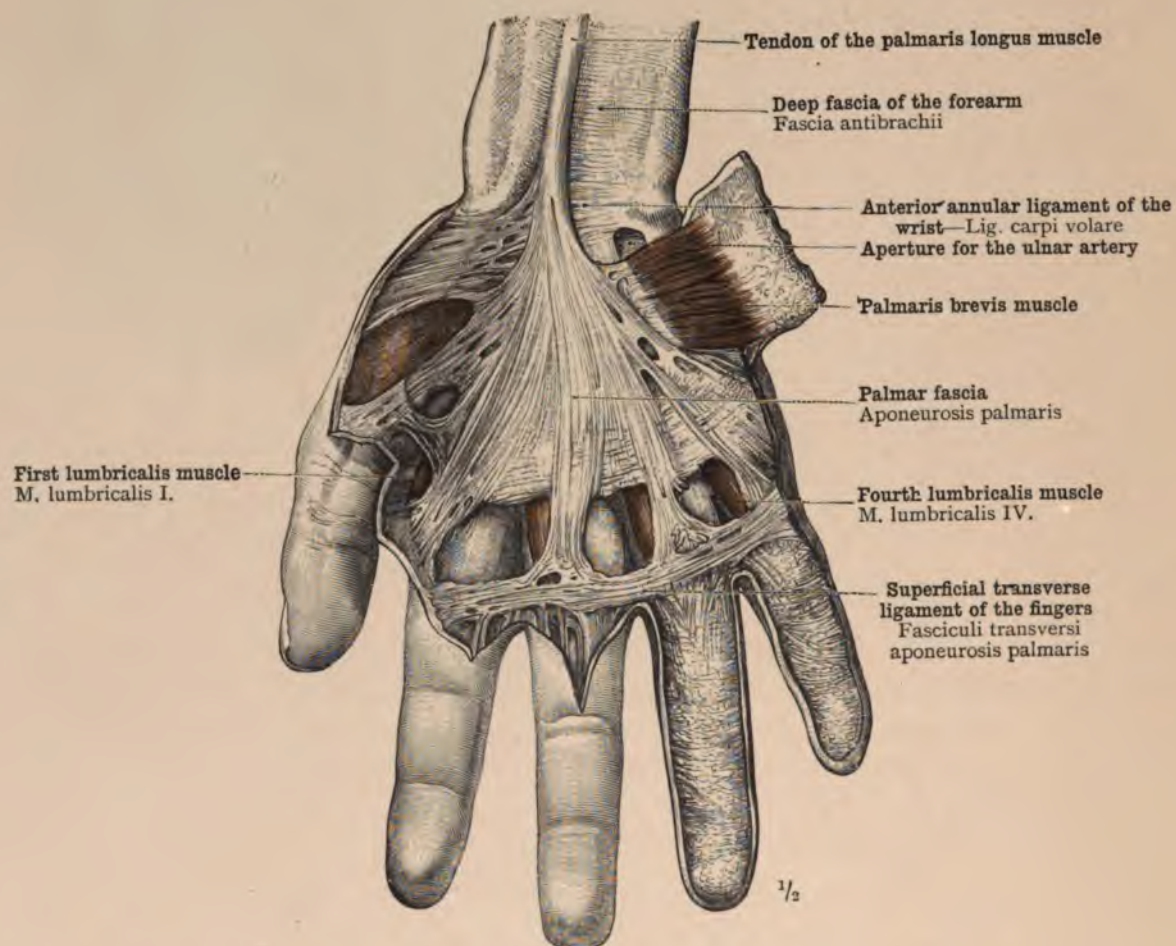


FIG. 581.—APONEUROSIS PALMARIS, DEEP FASCIA OF THE PALM, OR PALMAR FASCIA; THE INSERTION OF THE TENDON OF THE PALMARIS LONGUS MUSCLE INTO THIS FASCIA; THE PROCESSES PASSING FROM THE PALMAR FASCIA TO THE DIGITAL SHEATHS; THE SUPERFICIAL TRANSVERSE LIGAMENT OF THE FINGERS. PALMARIS BREVIS MUSCLE.

Musculi manus—Muscles of the hand.

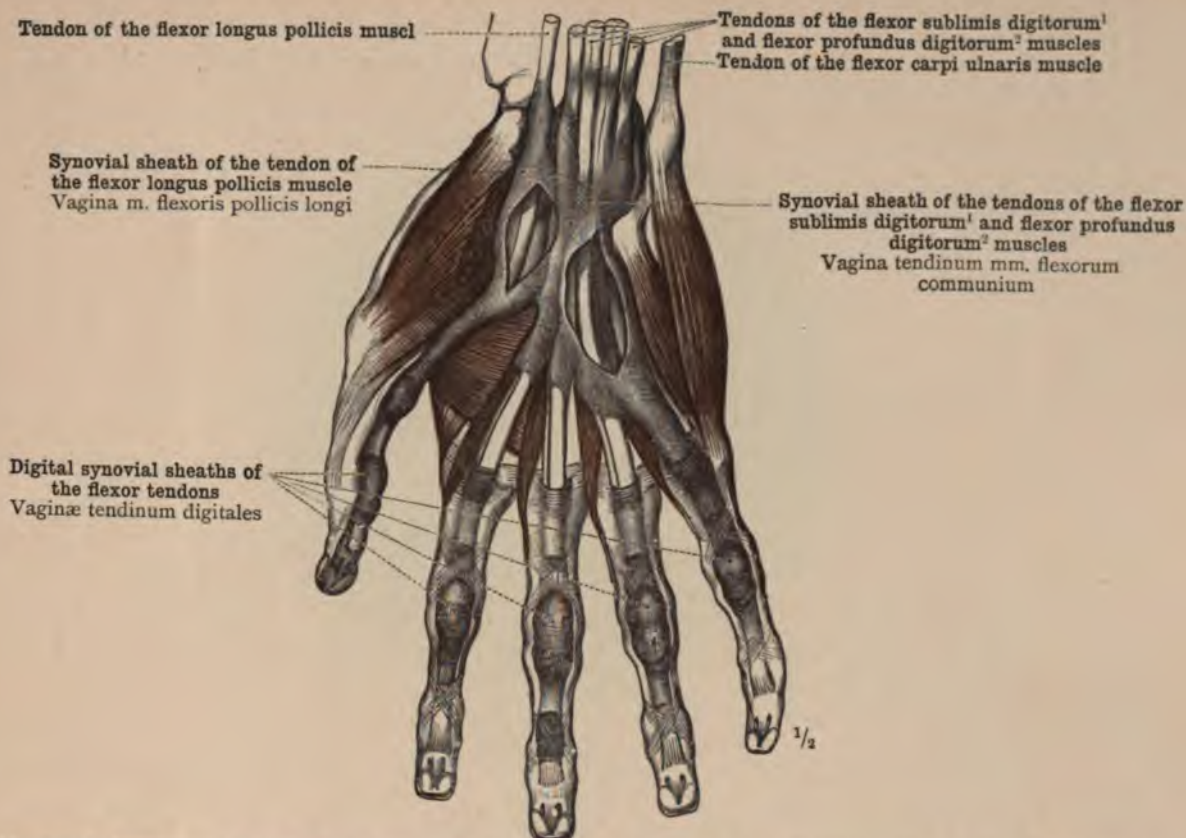


FIG. 582.—THE SYNOVIAL SHEATHS OF THE FLEXOR TENDONS,³ PREPARED AFTER INJECTING THEM WITH ALCOHOL. RIGHT HAND.

The palmar fascia and the anterior annular ligament of the wrist have been removed.

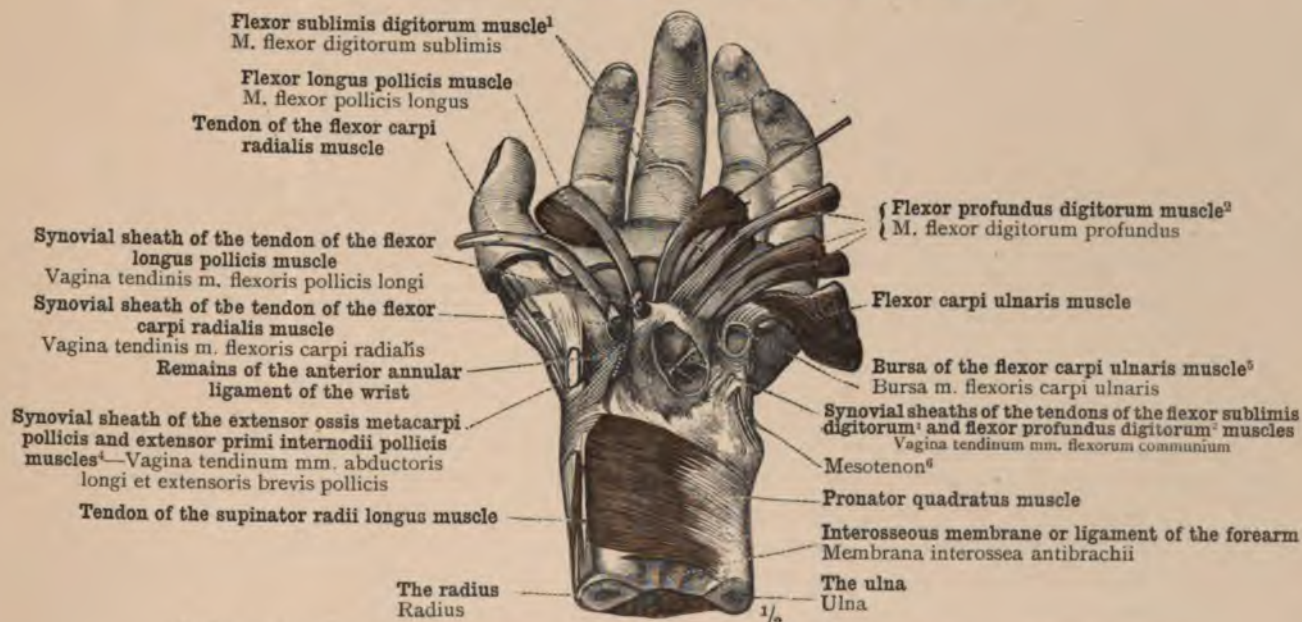


FIG. 583.—THE SYNOVIAL SHEATHS OF THE FLEXOR TENDONS, DISPLAYED, AFTER THE REMOVAL OF THE ANTERIOR ANNULAR LIGAMENT OF THE WRIST, BY TURNING DOWN THE FLEXOR TENDONS INTO THE PALM OF THE HAND. LEFT HAND.

The synovial sheaths and bursæ have all been opened.

Musculi manus—Muscles of the hand.

¹ Or *flexor perforatus* muscle.

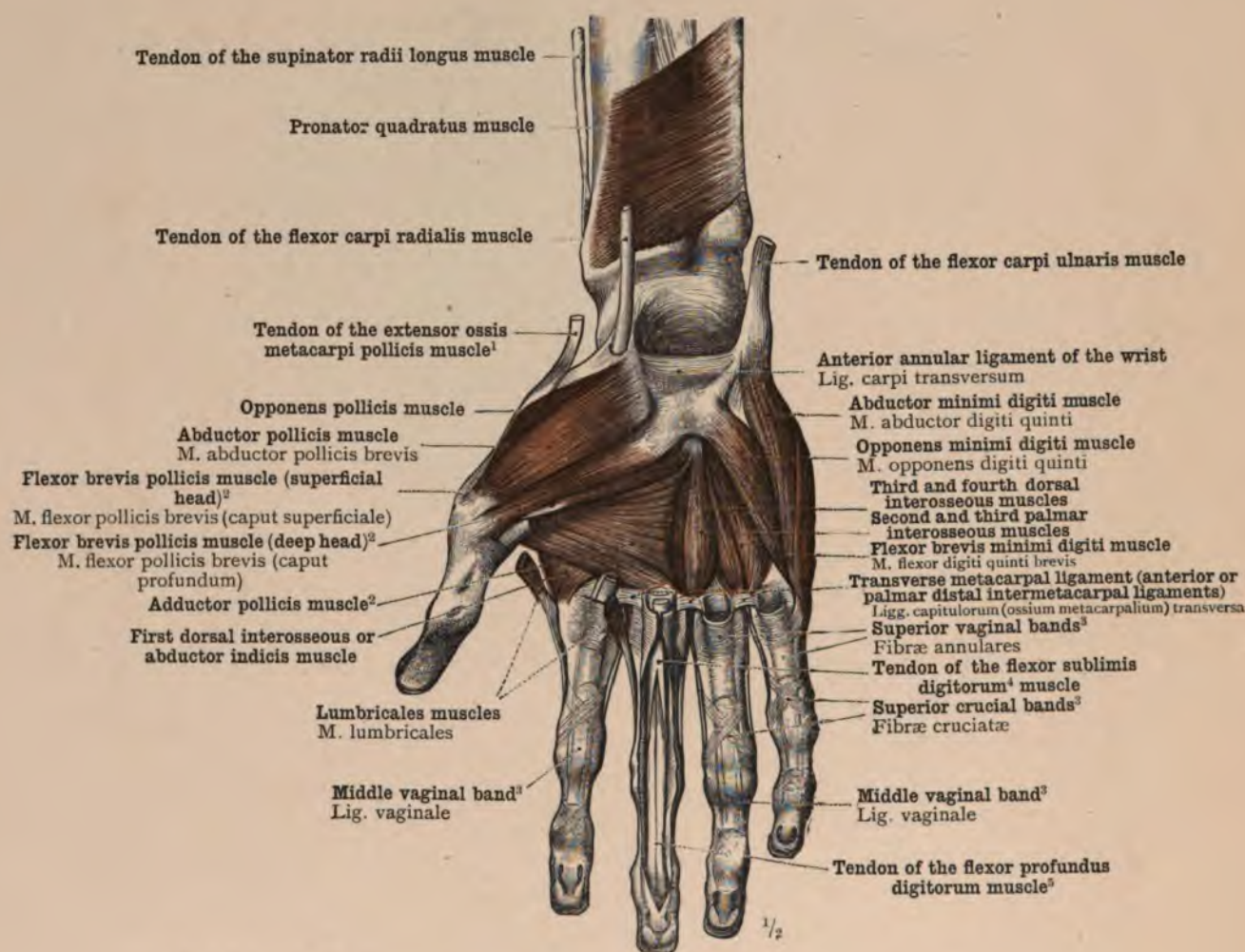
² Or *flexor perforans* muscle.

³ The synovial sheath of the common flexors in the canal of the carpus beneath the anterior annular ligament of the wrist is sometimes known as the *great carpal bursa*. It extends upwards to the level of the radiocarpal articulation, and downwards about halfway along the metacarpal bones, ending in blind pouches in the case of the index, middle, and ring fingers, the digital sheaths of which are separate; in the case of the little finger, however, the digital sheath of the flexor tendon is continuous with the great carpal bursa. The sheath of the flexor longus pollicis is entirely distinct in the carpal canal from the sheath of the common flexors.—Tr.

⁴ See note ¹ to p. 326.

⁵ This bursa is situated beneath the tendon close to its insertion.—Tr.

⁶ *Mesotenon*.—This term is not used by English anatomists. The synovial sheath of the common flexors beneath the anterior annular ligament is in most cases divided by an incomplete septum attached to the middle finger tendon of the deep flexor. It is to this structure that the term *mesotenon* is applied.—Tr.



¹ See note ¹ to p. 326.

² See note ² to p. 324.

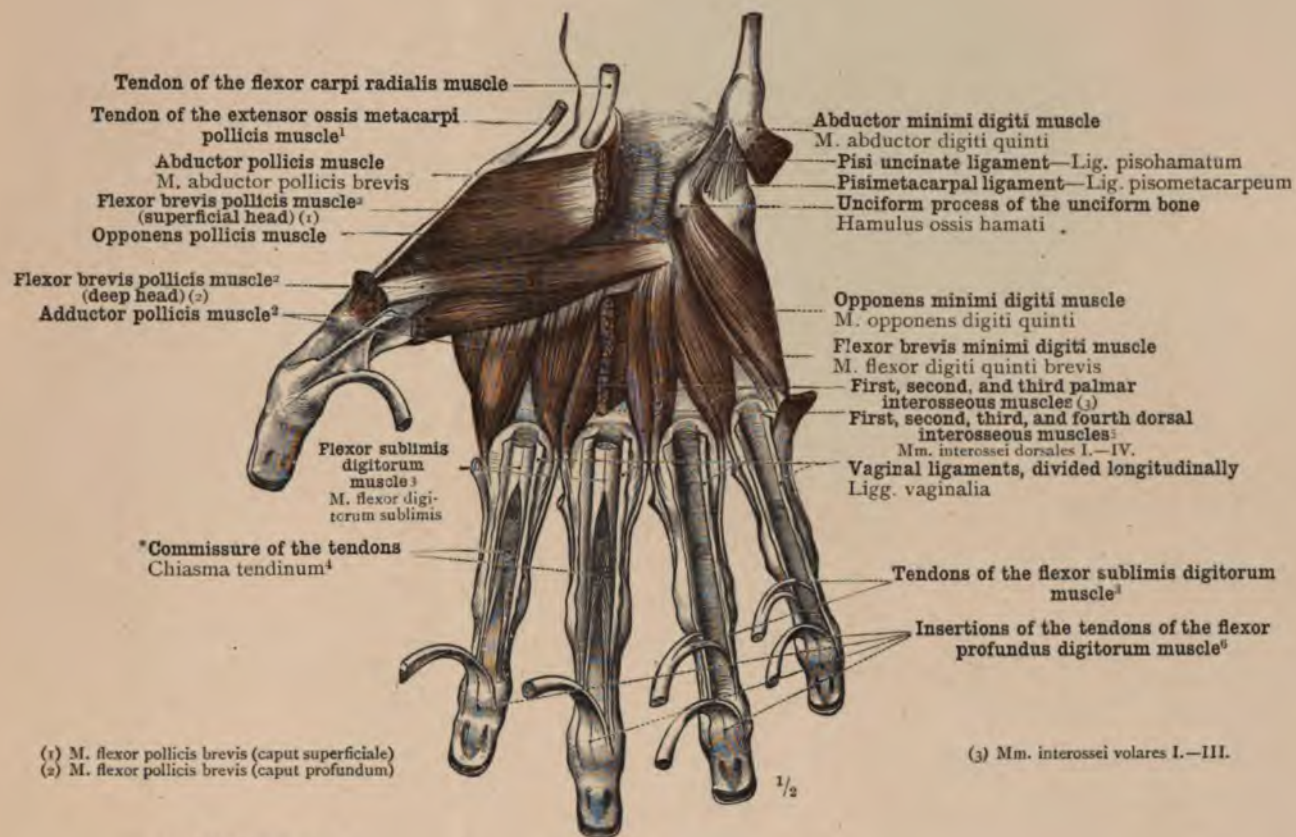
³ The author does not enumerate all the component parts of the anterior wall of the digital sheaths of the flexor tendons. These are : (1) *Superior vaginal band* (called by Toldt *fibræ annulares*), strong transverse fibres crossing the tendon at the level of the upper half of the proximal phalanx (to the rough margins of the anterior surface of which bone the fibres are attached); (2) *superior crucial band* (called by Toldt *fibræ cruciatae*), X-shaped bands at the level of the distal end of the proximal phalanx; (3) *middle vaginal band*, a slight transverse slip at the level of the proximal interphalangeal articulation (called by Toldt *ligamentum vaginale*); (4) *oblique band*, passing downwards and inwards across the proximal extremity of the medial phalanx; (5) *inferior crucial band*, in front of the distal interphalangeal articulation.—Tn.

⁴ Or *flexor perforatus* muscle.

⁵ Or *flexor perforans* muscle.

FIG. 584.—THE SUPERFICIAL LAYER OF MUSCLES OF THE THENAR EMINENCE: ABDUCTOR POLLICIS MUSCLE; THE SUPERFICIAL HEAD AND A PORTION OF THE DEEP HEAD OF THE FLEXOR BREVIS POLLICIS MUSCLE (see note ² to p. 324). THE SUPERFICIAL MUSCLES OF THE HYPOTHENAR EMINENCE: ABDUCTOR MINIMI DIGITI AND FLEXOR BREVIS MINIMI DIGITI MUSCLES. ADDUCTOR POLLICIS MUSCLE (see note ² to p. 324). THIRD AND FOURTH DORSAL INTEROSSEOUS AND SECOND AND THIRD PALMAR INTEROSSEOUS MUSCLES. PRONATOR QUADRATUS MUSCLE. VAGINAL LIGAMENTS (see note ³ above). RIGHT HAND.

Musculi manus—Muscles of the hand.



¹ See note ¹ to p. 326.

² See note ² to p. 324.

³ Or *flexor perforatus* muscle.

⁴ *Chiasma Tendinum*.—This term is not commonly employed by English anatomists. It is applied by the author to the commissure by which the two divisions of the tendon of the superficial flexor, after splitting for the passage of the tendon of the deep flexor, are reunited for a short space; below this commissure the tendon of the superficial flexor divides once more into two parts, which pass to the lateral ridges of the medial phalanx.—Tr.

⁵ The first dorsal interosseous muscle is also called the *abductor indicis* muscle.—Tr.

⁶ Or *flexor perforans* muscle.

FIG. 585.—THE DEEP LAYER OF MUSCLES OF THE THENAR AND HYPOTHENAR EMINENCES, DISPLAYED BY THE REMOVAL OF THE ABDUCTOR POLLICIS AND ABDUCTOR MINIMI DIGITI MUSCLES, AND ALSO OF THE SUPERFICIAL HEAD OF THE FLEXOR BREVIS POLLICIS MUSCLE: OPPONENS POLLICIS MUSCLE; DEEP HEAD OF THE FLEXOR BREVIS POLLICIS MUSCLE (see note ² to p. 324); OPPONENS MINIMI DIGITI; FLEXOR BREVIS MINIMI DIGITI.

By the removal of that portion of the adductor pollicis muscle which arises from the third metacarpal bone, the portion of this muscle arising from the carpal ligaments, and the dorsal and palmar interosseous muscles, are exposed to view. The vaginal ligaments of the flexor tendons have been opened, and in the index and middle fingers the commissure of the tendons (see note ⁴ above) of the superficial flexor is shown.

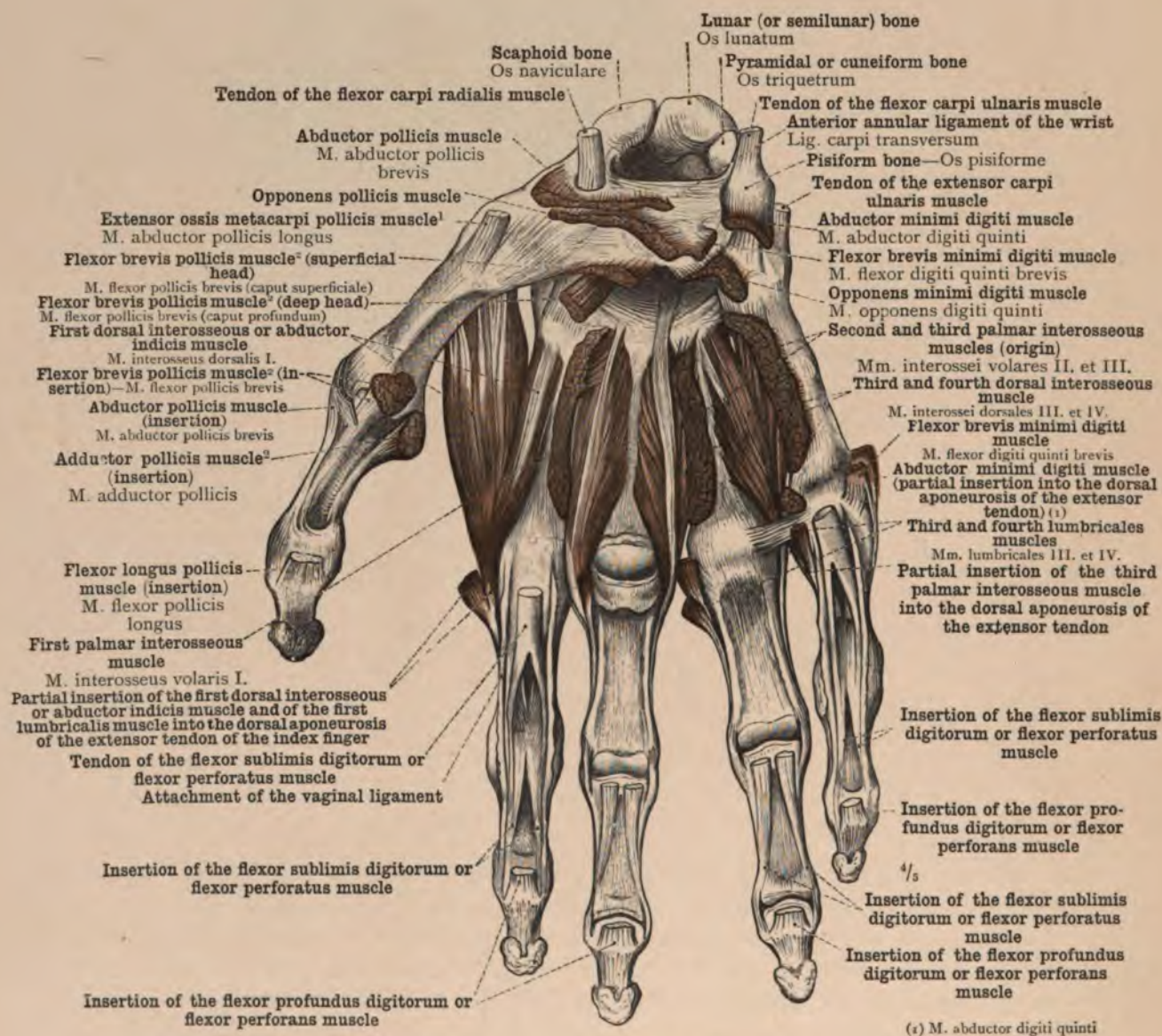
¹ See note ¹ to p. 326.² See note ² to p. 324.

FIG. 586.—ATTACHMENT OF MUSCLES TO THE PALMAR SURFACE OF THE HAND.

Musculi manus—Muscles of the hand.

MUSCULI EXTREMITATIS
INFERIORIS

THE MUSCLES
OF THE LOWER EXTREMITY

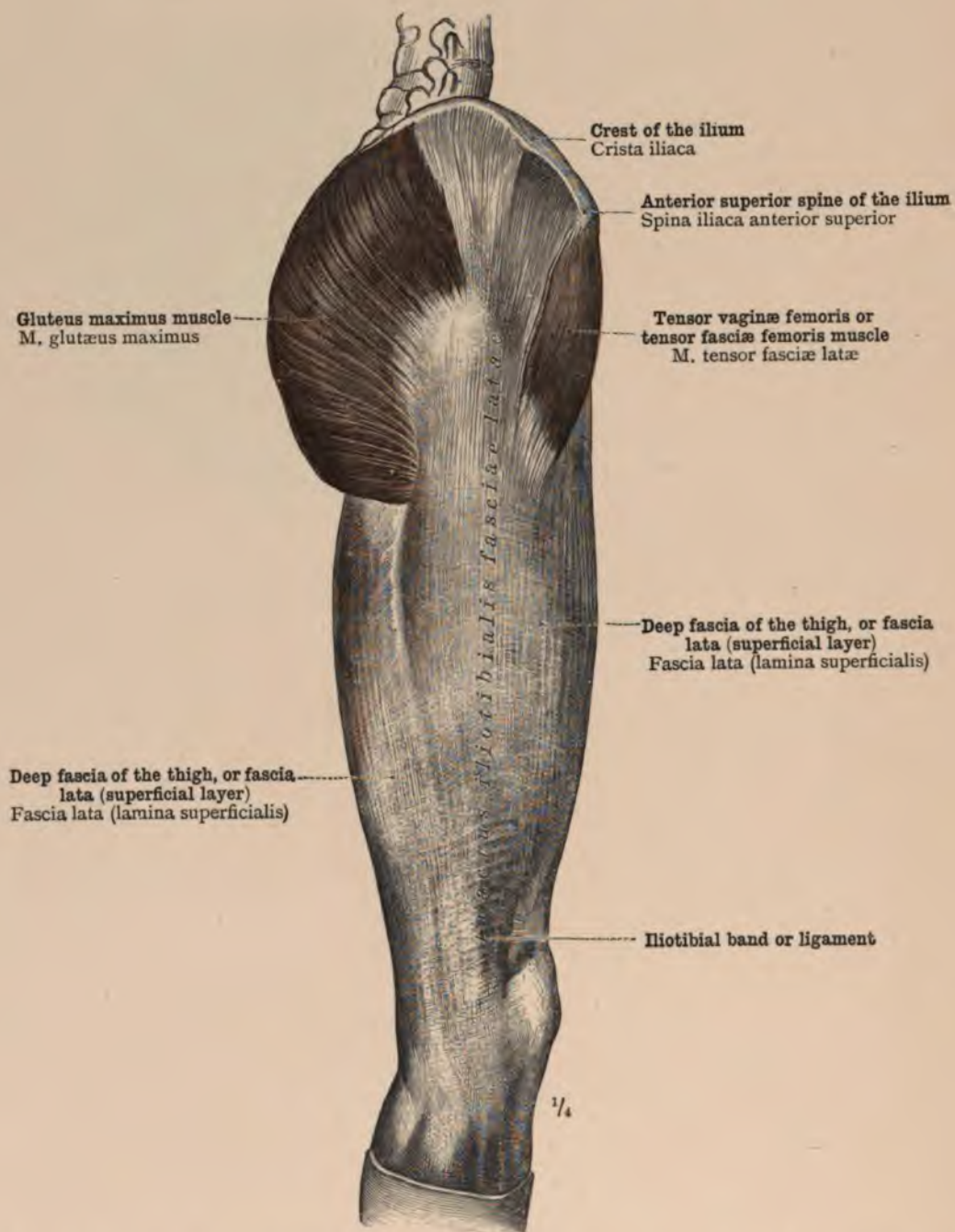


FIG. 587.—DEEP FASCIA OF THE THIGH, OR FASCIA LATA, SEEN FROM THE OUTER SIDE, WITH THE THICKENED PORTION OF THIS FASCIA, KNOWN AS THE ILIOTIBIAL BAND OR LIGAMENT; INSERTION OF THE TENSOR VAGINÆ FEMORIS (TENSOR FASCIÆ FEMORIS, TENSOR FASCIÆ LATÆ) MUSCLE AND PARTIAL INSERTION OF THE GLUTEUS MAXIMUS MUSCLE INTO THE ILIOTIBIAL BAND OR LIGAMENT. RIGHT THIGH.

Musculi coxæ et femoris—Muscles of the hip and thigh.

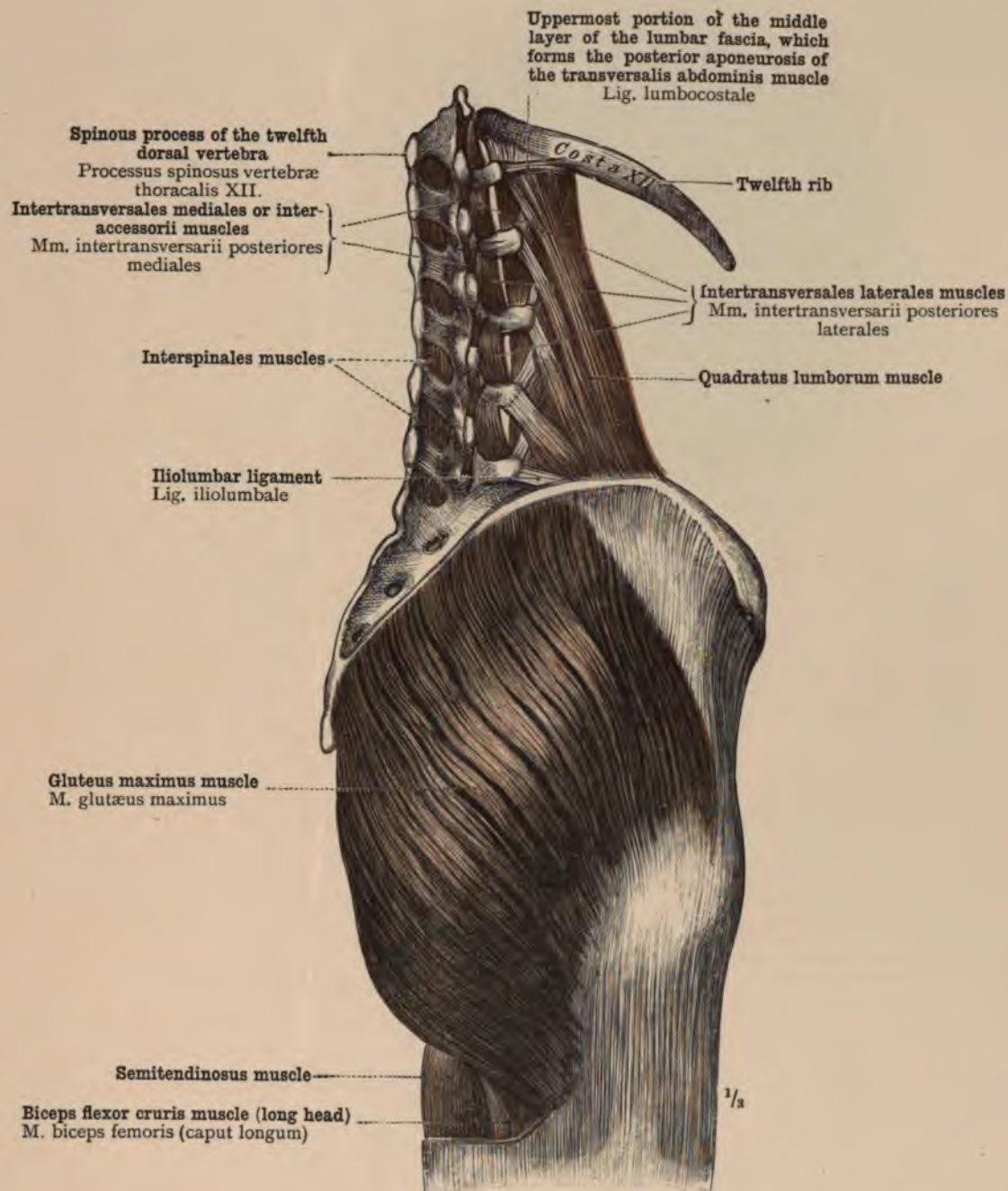
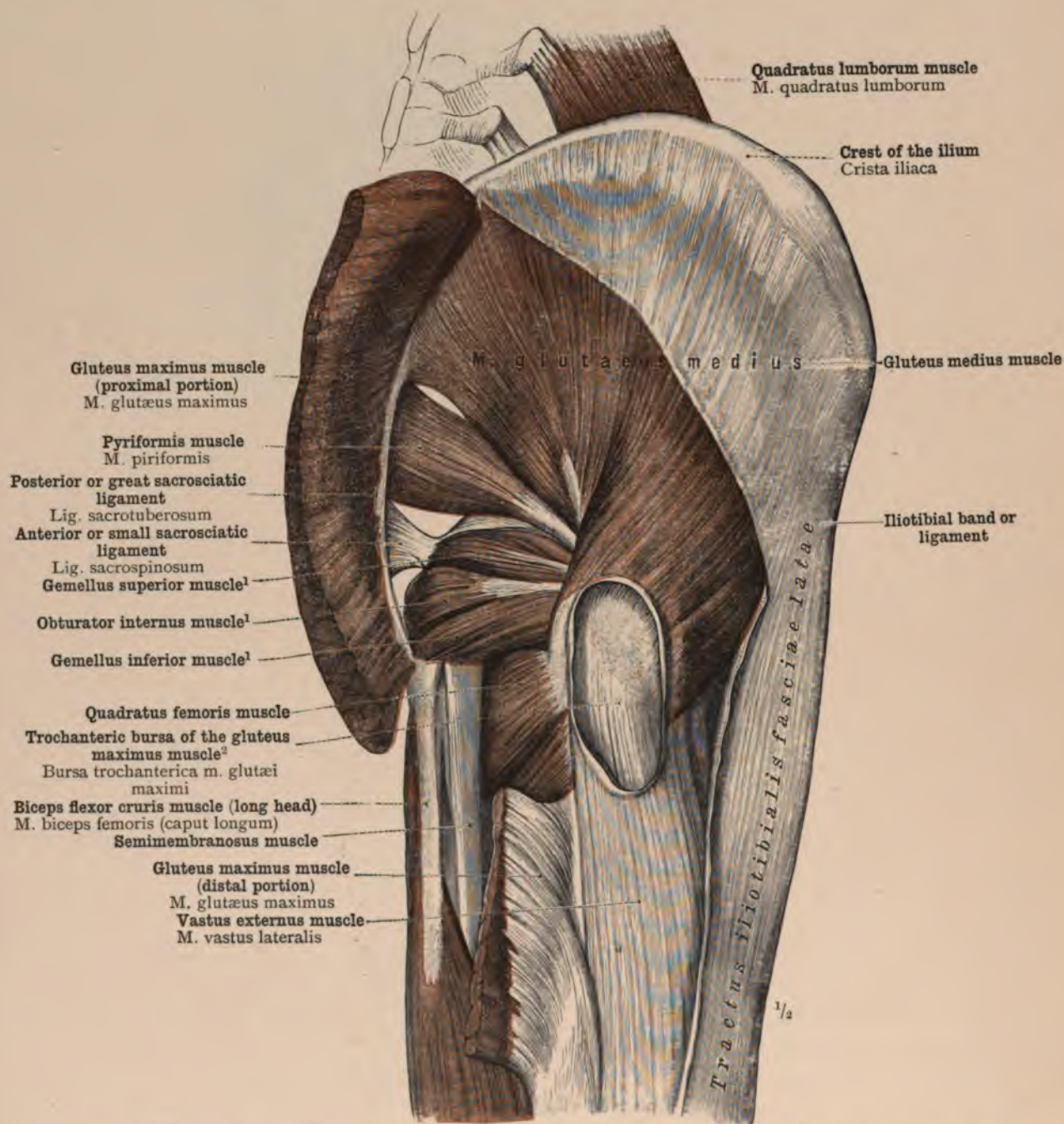


FIG. 588.—GLUTEUS MAXIMUS MUSCLE, SEEN OBLIQUELY FROM BEHIND AND WITHOUT, CONSTITUTING THE SUPERFICIAL LAYER OF THE EXTERNAL MUSCLES OF THE HIP. QUADRATUS LUMBORUM MUSCLE; INTERSPINALES, INTERTRANSVERSALES LATERALES, AND INTERTRANSVERSALES MEDIALES OR INTERACCESSORII MUSCLES OF THE LUMBAR REGION; SEEN FROM BEHIND. RIGHT SIDE.

Musculi coxæ—Muscles of the hip.

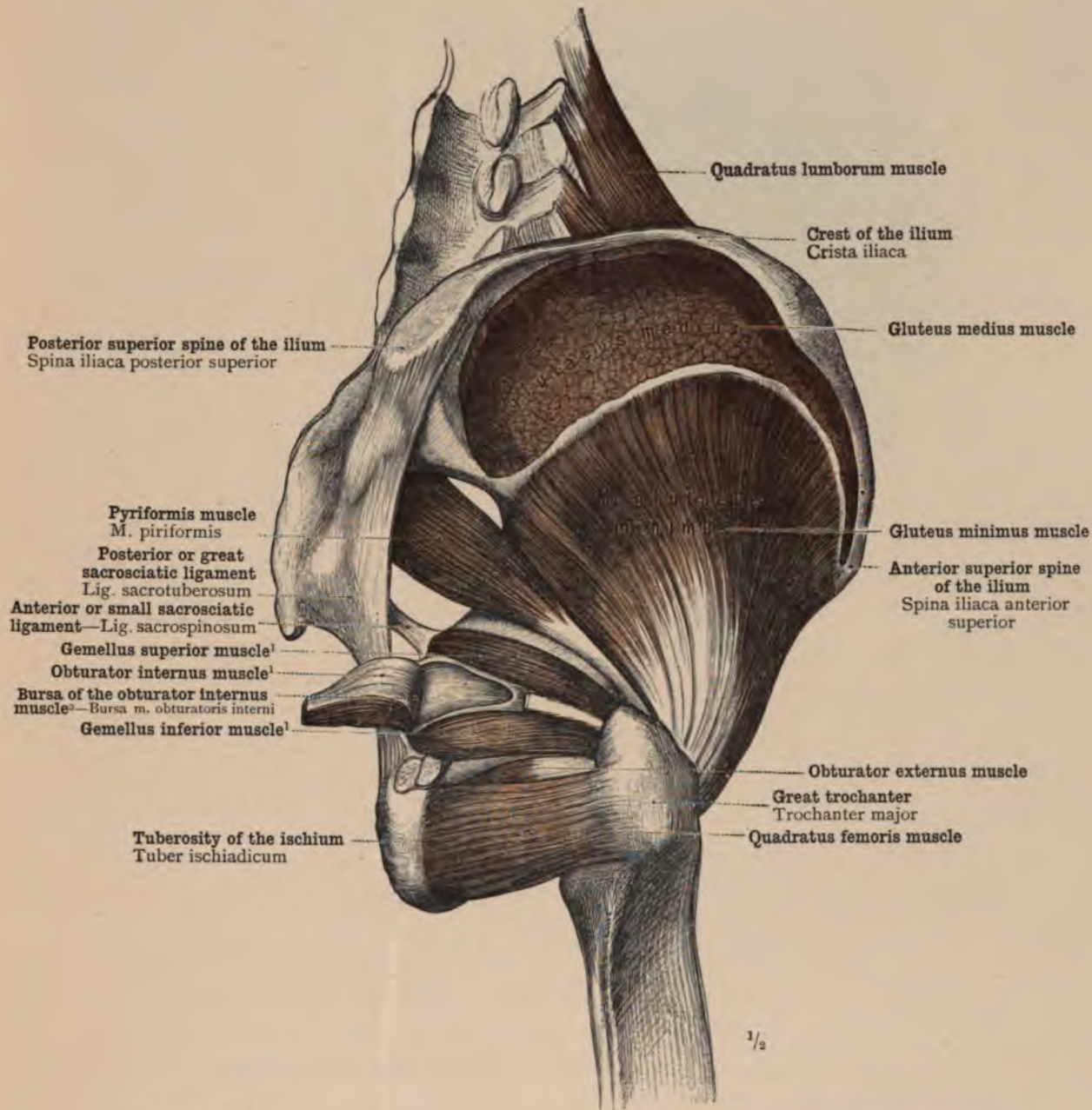


¹ The gemelli muscles may be regarded as portions of the obturator internus muscle arising outside the pelvis, and for this reason Macalister has given to the three muscles the name of *triceps rotator femoris muscle*, but the term is rarely used.—Tr.

² The *trochanteric bursa of the gluteus maximus muscle* is situated, as its name implies, between the fascial insertion of the gluteus maximus muscle and the great trochanter of the femur. In most cases it is a large compound or multilocular bursa, but is occasionally represented by several distinct smaller bursæ.—Tr.

FIG. 589.—SECOND LAYER OF THE EXTERNAL MUSCLES OF THE HIP, DISPLAYED BY THE DIVISION OF THE GLUTEUS MAXIMUS MUSCLE AND THE POSTERIOR PORTION OF THE FASCIA LATA: GLUTEUS MEDIUS MUSCLE; PYRIFORMIS MUSCLE; OBTURATOR INTERNUS AND GEMELLUS SUPERIOR AND INFERIOR MUSCLES; QUADRATUS FEMORIS MUSCLE. ORIGIN AND FEMORAL INSERTION OF THE GLUTEUS MAXIMUS MUSCLE. TROCHANTERIC BURSA OF THE GLUTEUS MAXIMUS MUSCLE. RIGHT HIP, SEEN FROM THE OUTER SIDE.

Musculi coxæ—Muscles of the hip.



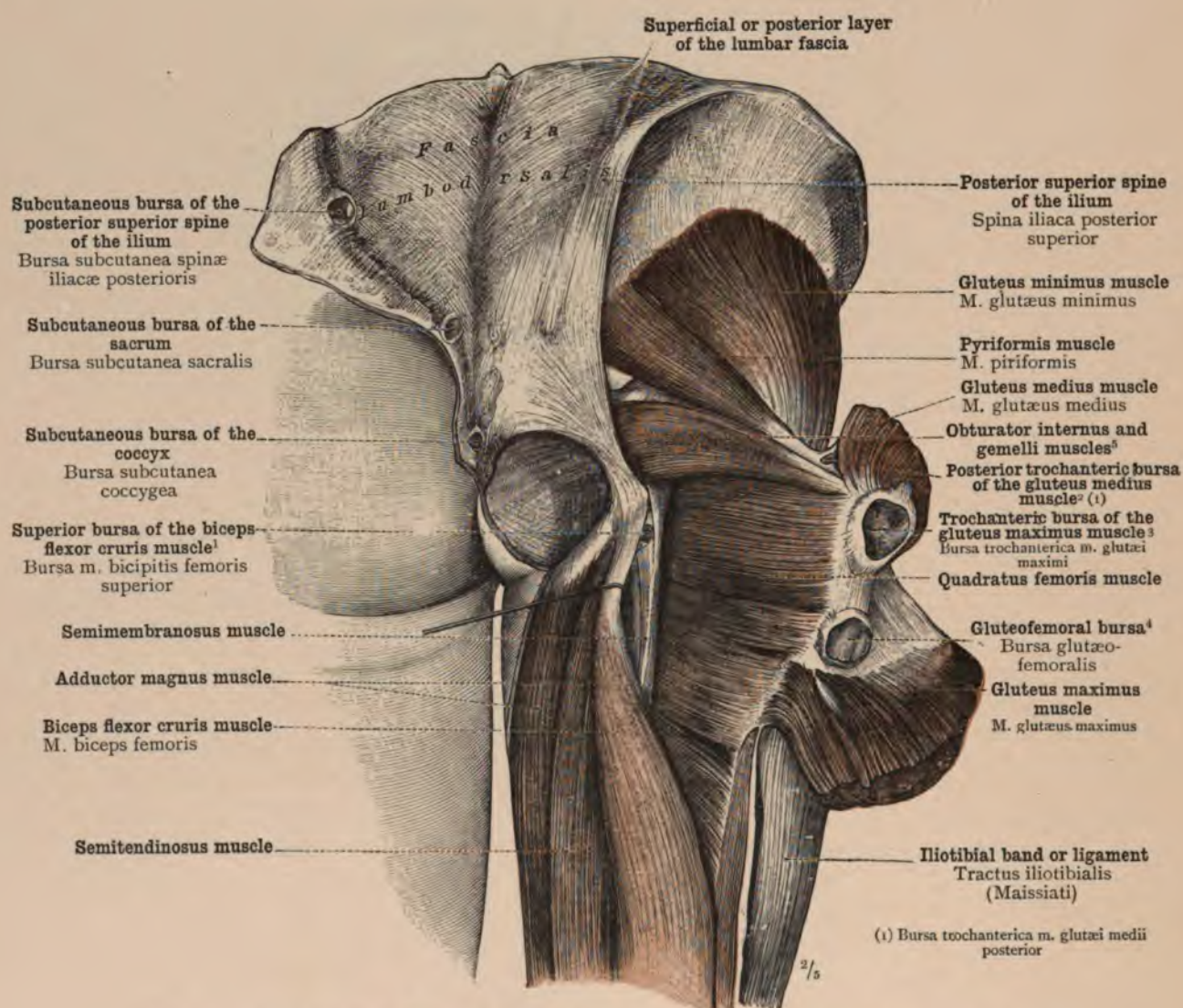
¹ See note ¹ to p. 340.

² The bursa of the obturator internus muscle is situated between the tendon of the obturator internus muscle and the cartilage-covered trochlear surface or groove of the ischium (*i.e.*, the hollowed portion of the bone between the spine and the tuberosity); a second bursa, long and narrow, lies between the tendon of the muscle and the capsule of the hip-joint: often, however, as in Fig. 590, these two bursae combine to form a single structure.—T.R.

FIG. 590.—DEEP EXTERNAL MUSCLES OF THE RIGHT HIP, DISPLAYED BY THE REMOVAL OF THE GLUTEUS MAXIMUS AND GLUTEUS MEDIUS MUSCLES: GLUTEUS MINIMUS MUSCLE; PYRIFORMIS MUSCLE. SEEN OBLIQUELY FROM THE RIGHT SIDE AND BEHIND.

The tendon of the obturator internus muscle has been divided, and the inner half has been turned inwards over the posterior or great sacrosciatic ligament, in order to display the bursa of the obturator internus muscle. The quadratus femoris muscle has been drawn downwards a little, and slightly separated from the gemellus inferior muscle, in order to bring into view between them a portion of the obturator externus muscle.

Musculi coxæ—Muscles of the hip.



¹ The superior bursa of the biceps flexor cruris muscle is situate between the tendon of the long head of that muscle and the origin of the semimembranosus muscle.—Tr.

² The posterior trochanteric bursa of the gluteus medius muscle is a small bursa situate internal to the tendon of that muscle, between it and the insertion of the tendon of the piriformis muscle.—Tr.

³ See note ² to p. 340.

⁴ The gluteofemoral bursa is situate between the fascial insertion of the gluteus maximus muscle and the upper part of the vastus externus muscle.—Tr.

⁵ See note ¹ to p. 340.

FIG. 591.—DEEP EXTERNAL MUSCLES OF THE RIGHT HIP SEEN FROM BEHIND, SHOWING THEIR RELATION TO THE POSTERIOR FEMORAL OR HAMSTRING MUSCLES AND TO THE ADDUCTOR MAGNUS MUSCLE. INSERTION OF THE GLUTEUS MAXIMUS INTO THE GLUTEAL RIDGE OF THE FEMUR AND INTO THE FASCIA LATA. BURSÆ OF THE SACRAL AND GLUTEAL REGIONS.

The gemelli muscles have been left undisturbed in their close proximity to the obturator internus muscle.

Musculi coxæ—Muscles of the hip.

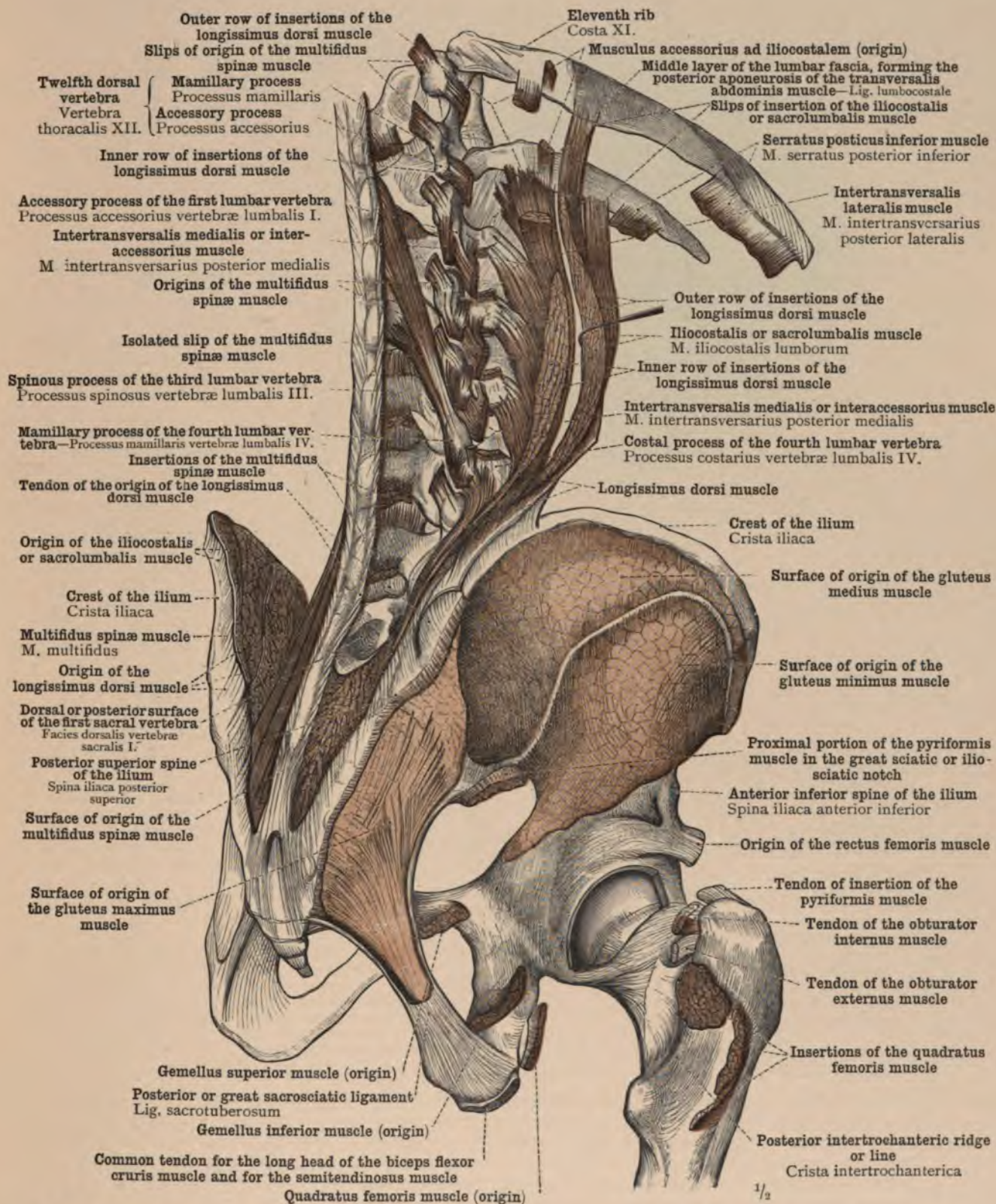
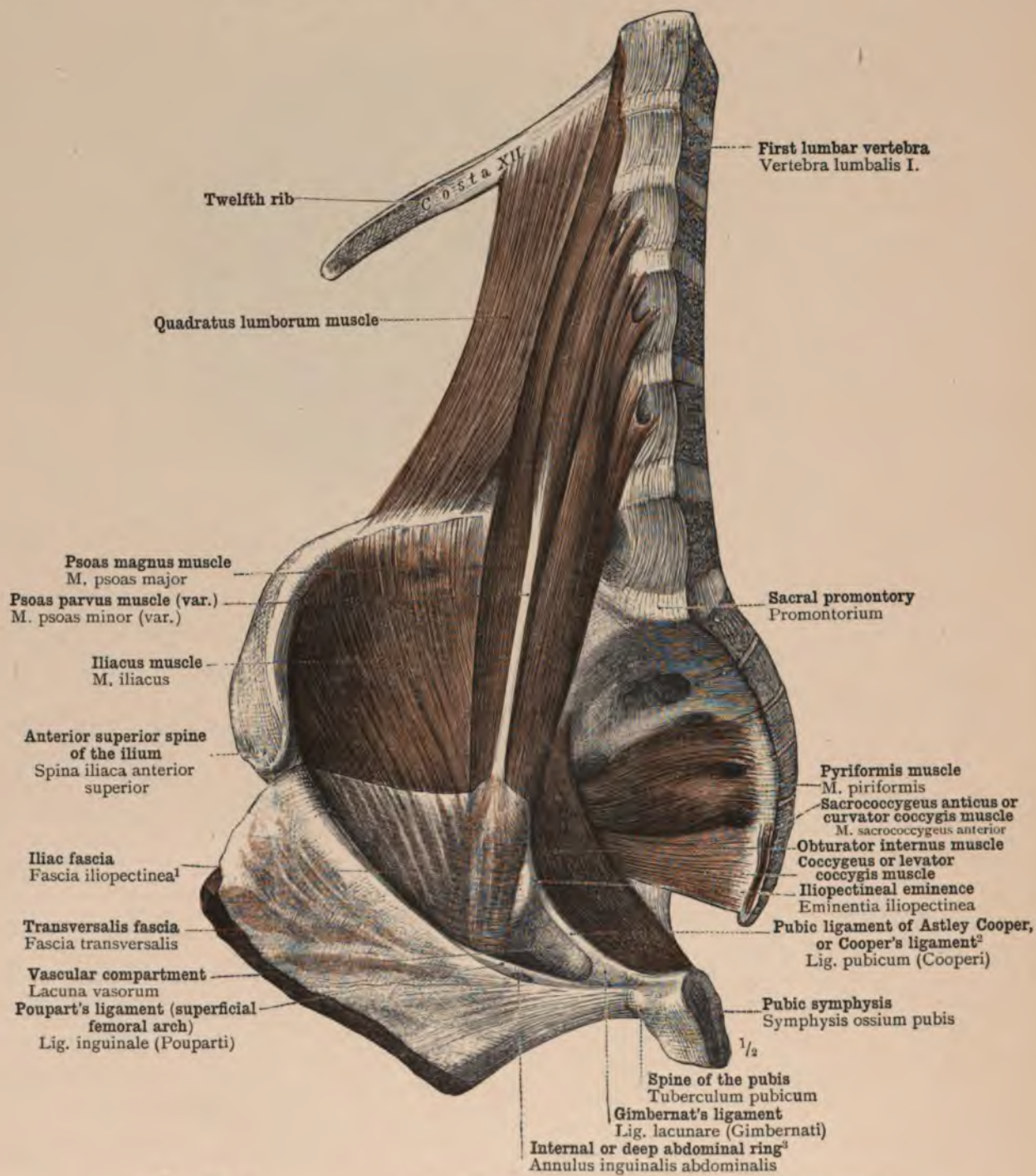


FIG. 592.—ATTACHMENT OF MUSCLES TO THE POSTERIOR SURFACE OF THE LUMBAR VERTEBRÆ
AND OF THE HIP-BONE.

Musculi coxæ—Muscles of the hip.



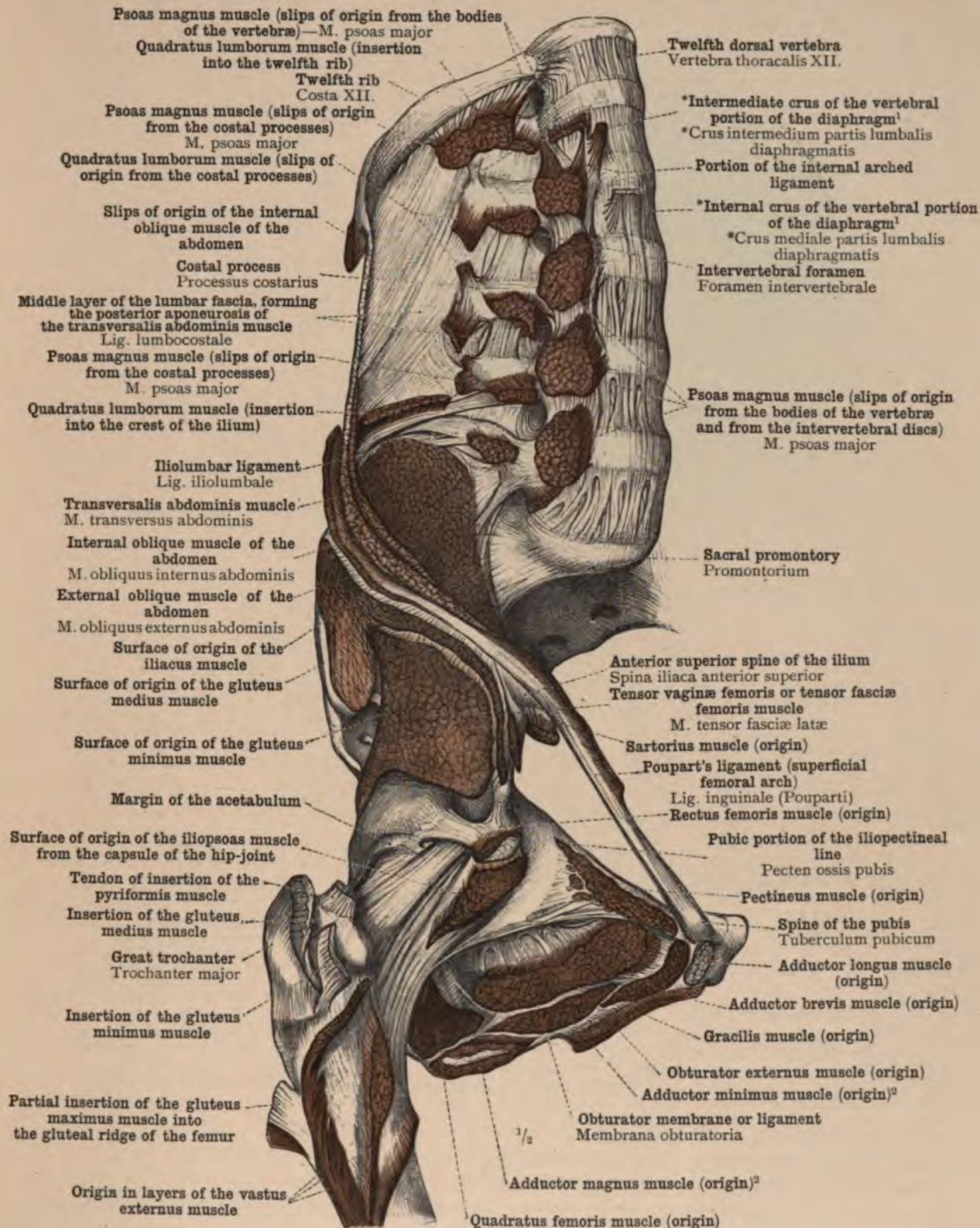
¹ See note ¹ to p. 390.

² See note ² to p. 390.

³ Or internal inguinal aperture.

FIG. 593.—INTERNAL MUSCLES OF THE REGION OF THE HIP, SEEN SOMEWHAT OBLIQUELY FROM BEFORE: ILIOPSOAS MUSCLE, CONSISTING OF TWO PARTS—THE ILIACUS MUSCLE AND THE PSOAS MAGNUS MUSCLE; PSOAS PARVUS MUSCLE, THE TENDON OF WHICH BECOMES INCORPORATED WITH THE ILIAC FASCIA. OBTURATOR INTERNUS MUSCLE. PYRIFORMIS AND QUADRATUS LUMBORUM MUSCLES. LACUNA VASORUM, OR VASCULAR COMPARTMENT, OF THE SPACE BETWEEN POUPART'S LIGAMENT (SUPERFICIAL FEMORAL ARCH) AND THE CONCAVE ILIOPUBIC MARGIN OF THE HIP-BONE. RIGHT SIDE.

Musculi coxæ—Muscles of the hip.

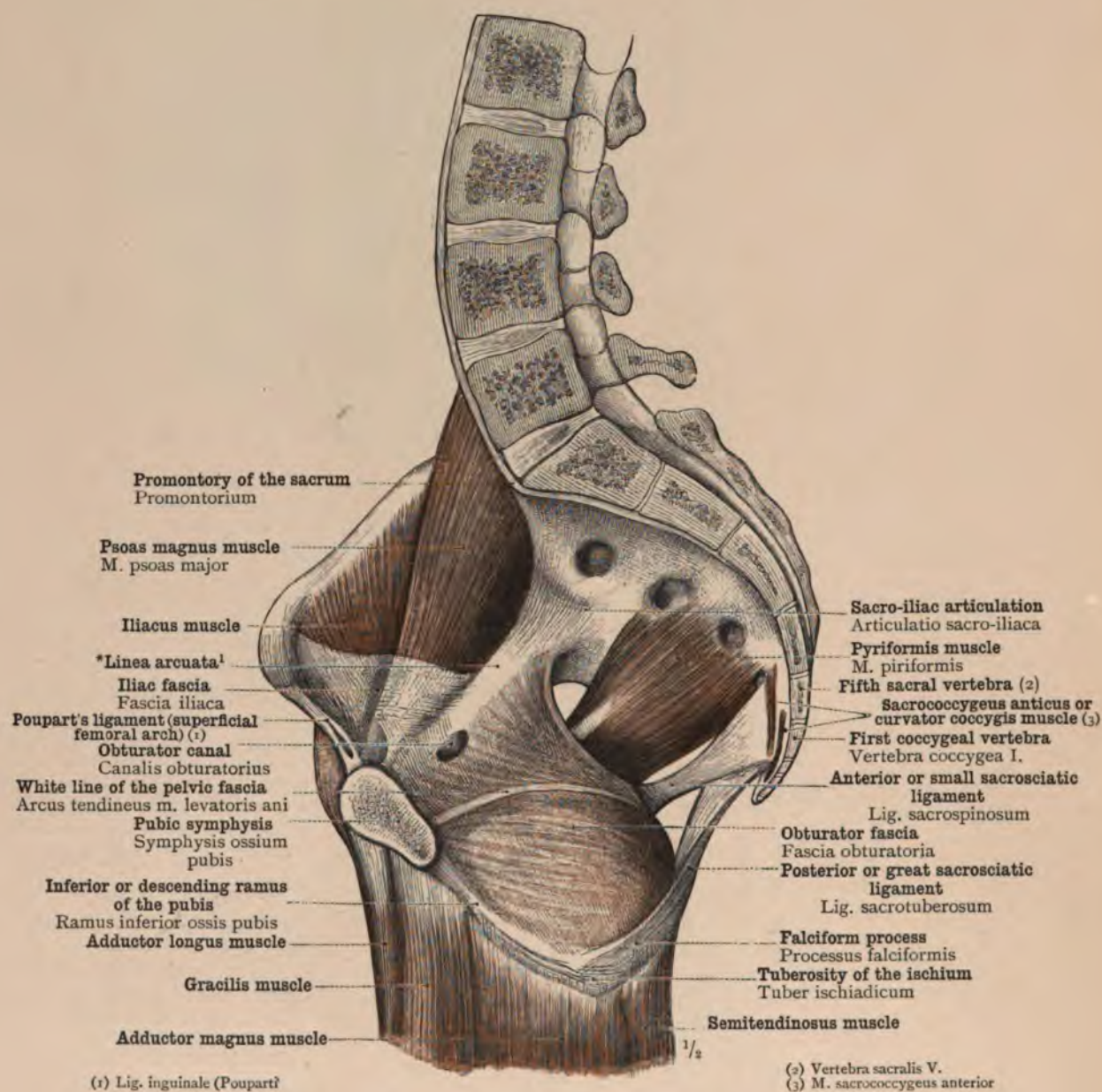


¹ See note 1 to p. 286.

² *Adductor Minimus Muscle*.—This is by English anatomists usually regarded as the *anterior and superior* portion of the adductor magnus muscle, arising from the body of the pubis and the ischiopubic rami, and inserted into the femur from the lower extremity of the insertion of the quadratus femoris muscle to the upper end of the linea aspera, and sometimes for a short distance along that line. The *adductor magnus* muscle of Continental writers, regarded by English anatomists as the *posterior and inferior* portion of the adductor magnus muscle, is much larger, arising from the inferior ramus of the ischium internal to the foregoing, and from the tuberosity of the ischium by a strong tendon which descends on the hinder surface of the muscle for a third of its length; this portion of the muscle is inserted into the whole length of the linea aspera below the preceding portion and into the upper part of the internal supracondylar line, and by a tendon which passes below the opening for the femoral vessels to the adductor tubercle on the internal condyle of the femur.—Tr.

FIG. 594.—ATTACHMENT OF MUSCLES TO THE ANTERIOR SURFACE OF THE LUMBAR VERTEBRÆ AND OF THE HIP-BONE

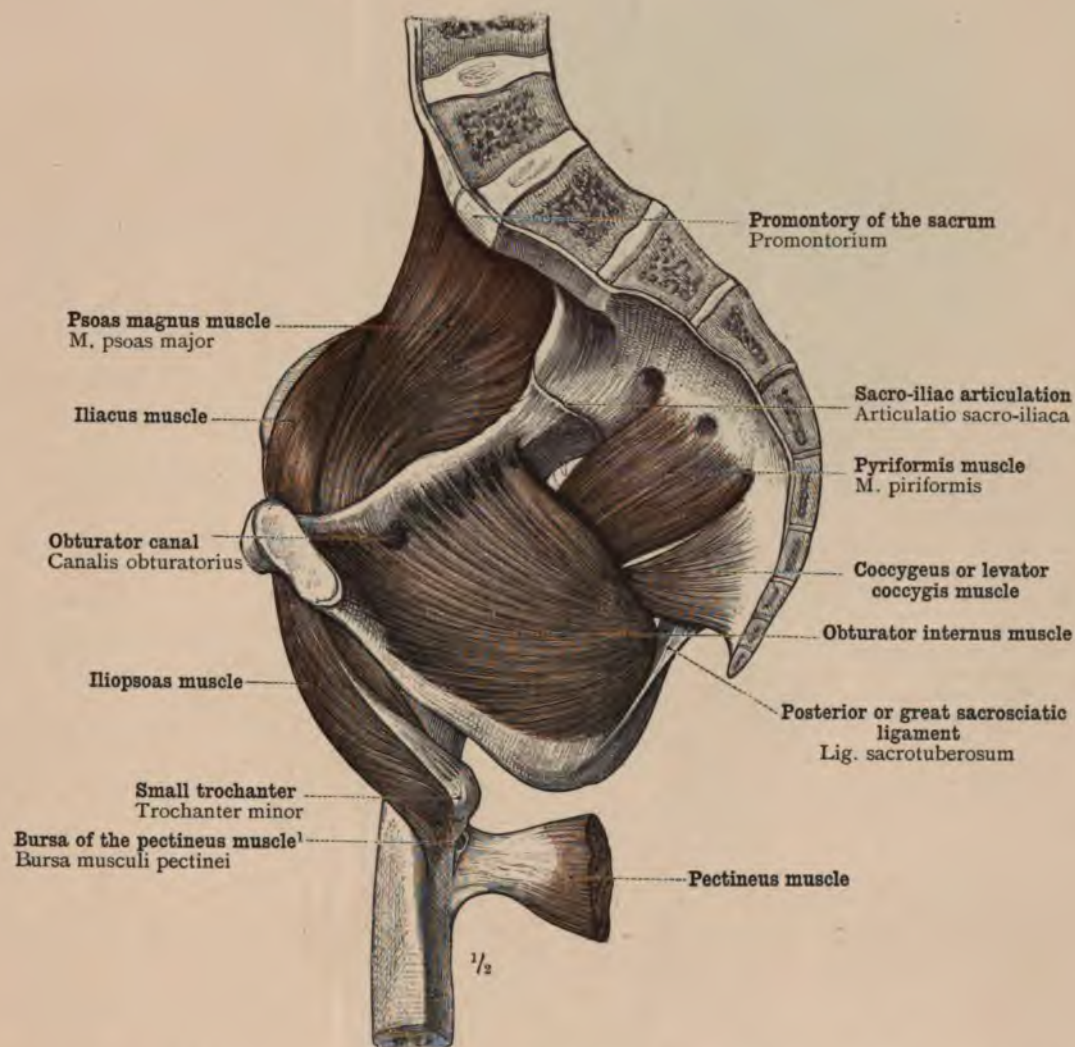
Musculi coxæ—Muscles of the hip.



* The **linea arcuata* marks the attachment of the iliac fascia along the brim of the pelvis to the iliopectineal line, where it is inseparably blended with the obturator fascia.—Th.

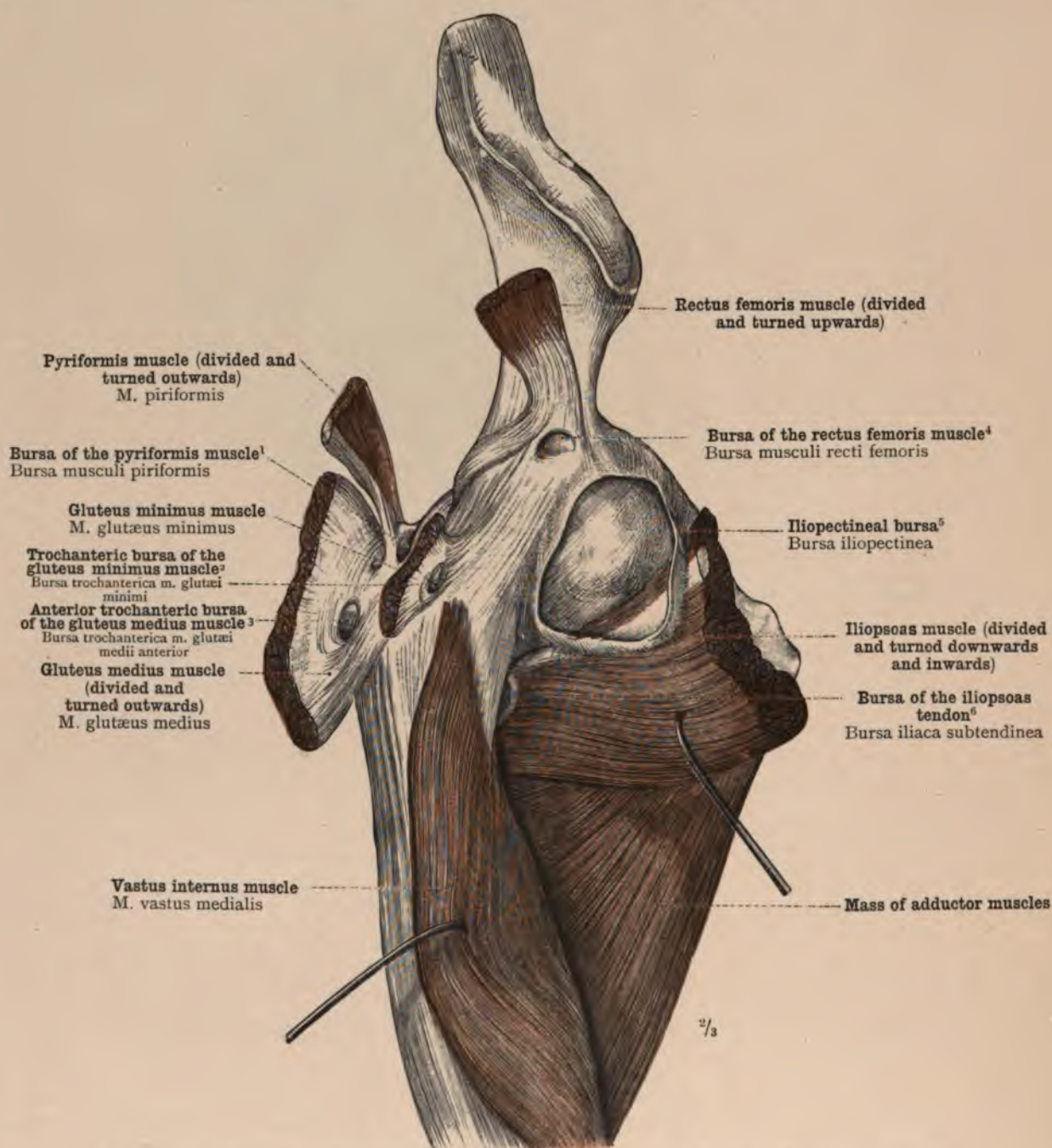
FIG. 595.—INTERNAL MUSCLES OF THE REGION OF THE HIP, SEEN FROM THE INNER SIDE, WITH THE OBTURATOR FASCIA AND A PORTION OF THE ILIAC FASCIA: PYRIFORMIS MUSCLE; THE TWO PARTS OF THE ILIOPSOAS MUSCLE, VIZ., PSOAS MAGNUS AND ILIACUS MUSCLES. PROXIMAL EXTREMITIES OF THE INTERNAL FEMORAL OR ADDUCTOR MUSCLES, SHOWING THEIR MUTUAL RELATIONS. WHITE LINE OF THE PELVIC FASCIA. RIGHT SIDE.

Musculi coxæ—Muscles of the hip.



¹ *Bursa of the Pectineus Muscle.*—This bursa is situated anteriorly to the tendon of the pectineus muscle close to its insertion, between the tendon and the femur.—Tr.

FIG. 596.—THE INTERNAL MUSCLES OF THE REGION OF THE HIP, SEEN FROM THE INNER SIDE, THE OBTURATOR FASCIA HAVING BEEN REMOVED, AND THE ILIOPSOAS MUSCLE FULLY EXPOSED UP TO ITS INSERTION INTO THE SMALL TROCHANTER: PYRIFORMIS AND OBTURATOR INTERNUS MUSCLES. BURSA OF THE PECTINEUS MUSCLE.

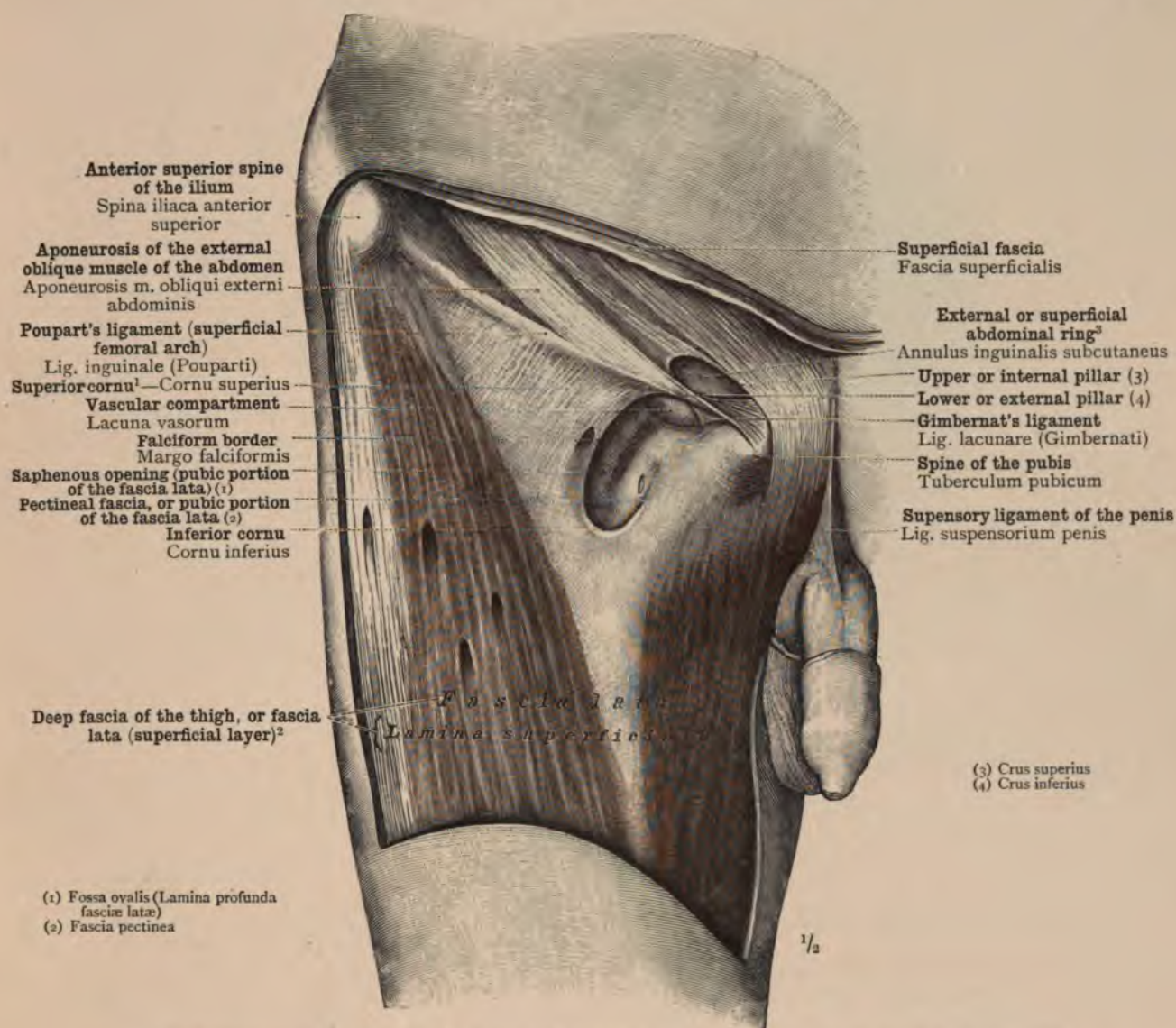


- ¹ The bursa of the piriformis muscle is situate beneath the tendon of that muscle close to its insertion.—Tr.
 ² The trochanteric bursa of the gluteus minimus muscle is situate beneath the tendon of that muscle close to its insertion.—Tr.
 ³ The anterior trochanteric bursa of the gluteus medius muscle is situate beneath the anterior part of the tendon of that muscle and the front of the outer surface of the great trochanter.—Tr.
 ⁴ The bursa of the rectus femoris muscle is situate between the anterior tendinous head of the muscle and the lower part of the anterior inferior spine of the ilium.—Tr.
 ⁵ The iliopectineal bursa is situate beneath the iliopsoas muscle as it passes over the iliopectineal eminence and the capsular ligament of the hip-joint. It frequently communicates with the joint.—Tr.
 ⁶ The bursa of the iliopsoas tendon is situate between the tendon of the iliopsoas muscle and the femur immediately above its insertion.—Tr.

FIG. 597.—THE BURSAE SITUATE BENEATH THE TENDONS OF THE MUSCLES OF THE HIP ADJACENT TO THEIR INSERTIONS. ILIOPECTINEAL BURSA. RIGHT SIDE. SEEN FROM BEFORE.

The distal extremities of the muscles have been drawn away from the bone to expose the bursæ, which have been opened.

Musculi coxæ—Muscles of the hip.



(1) Fossa ovalis (Lamina profunda fasciæ latæ)
(2) Fascia pectinea

(3) Crus superius
(4) Crus inferius

¹ The superior cornu of the saphenous opening passes completely to the inner side of the femoral sheath to be attached to Gimbernat's ligament. This inner part of the superior cornu is termed the *femoral ligament* or *Hey's ligament*.—Tr.
² The upper part of this portion of the fascia lata, lying to the outer side of the saphenous opening, is termed the *iliac portion* of the fascia lata.—Tr.
³ Or external inguinal aperture.

FIG. 598.—DEEP FASCIA OF THE THIGH OR FASCIA LATA OF THE RIGHT SIDE, SEEN FROM BEFORE; ITS CONNEXION WITH THE APONEUROSIS OF THE EXTERNAL OBLIQUE MUSCLE OF THE ABDOMEN THROUGH ITS ATTACHMENT TO POUPART'S LIGAMENT (SUPERFICIAL FEMORAL ARCH). THE EXTERNAL OR SUPERFICIAL ABDOMINAL RING (THE EXTERNAL INGUINAL APERTURE), LYING IMMEDIATELY ABOVE THE INNER EXTREMITY OF POUPART'S LIGAMENT, WHICH FORMS THE LOWER OR EXTERNAL PILLAR OF THE RING. THE SAPHENOUS OPENING (FOSSA OVALIS) WHICH FORMS THE FEMORAL APERTURE OF THE FEMORAL OR CRURAL CANAL. THE PUBIC PORTION OF THE FASCIA LATA, OR PECTINEAL FASCIA, ATTACHED ABOVE TO THE ILIOPECTINEAL LINE, FORMS THE FLOOR OF THE SAPHENOUS OPENING, AND, PASSING OUTWARDS, DIPS DEEPLY BENEATH THE FALCIFORM BORDER OF THE ILIAC PORTION OF THE FASCIA LATA AND BEHIND THE FEMORAL VESSELS TO FORM THE BACK OF THE FEMORAL OR CRURAL SHEATH, BY MEANS OF WHICH IT IS CONTINUED INTO THE ILIAC FASCIA.

The vessels that descend through the vascular compartment or lacuna vasorum beneath Poupart's ligament (femoral artery and femoral vein) have been removed.

Musculi coxæ et femoris—Muscles of the hip and thigh.

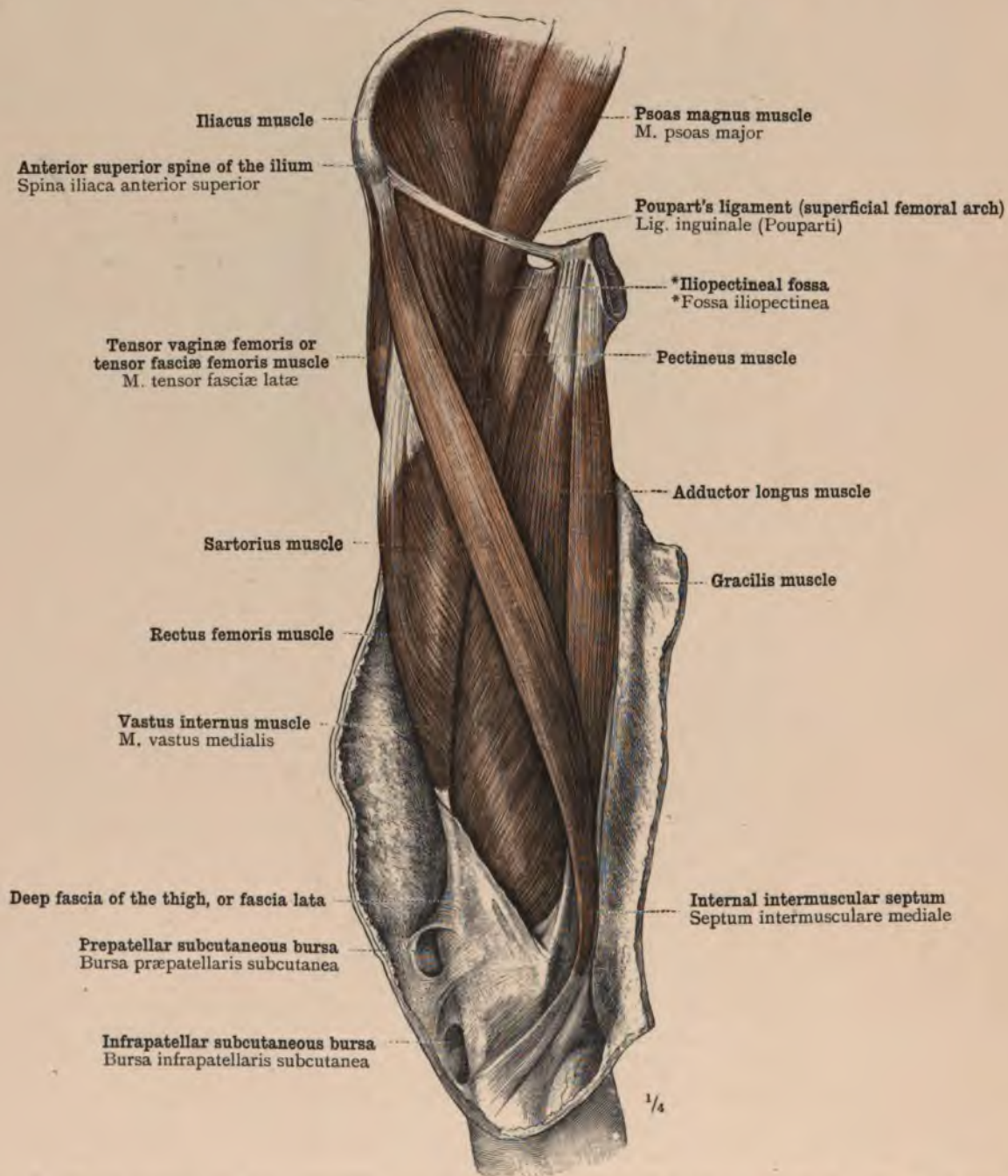
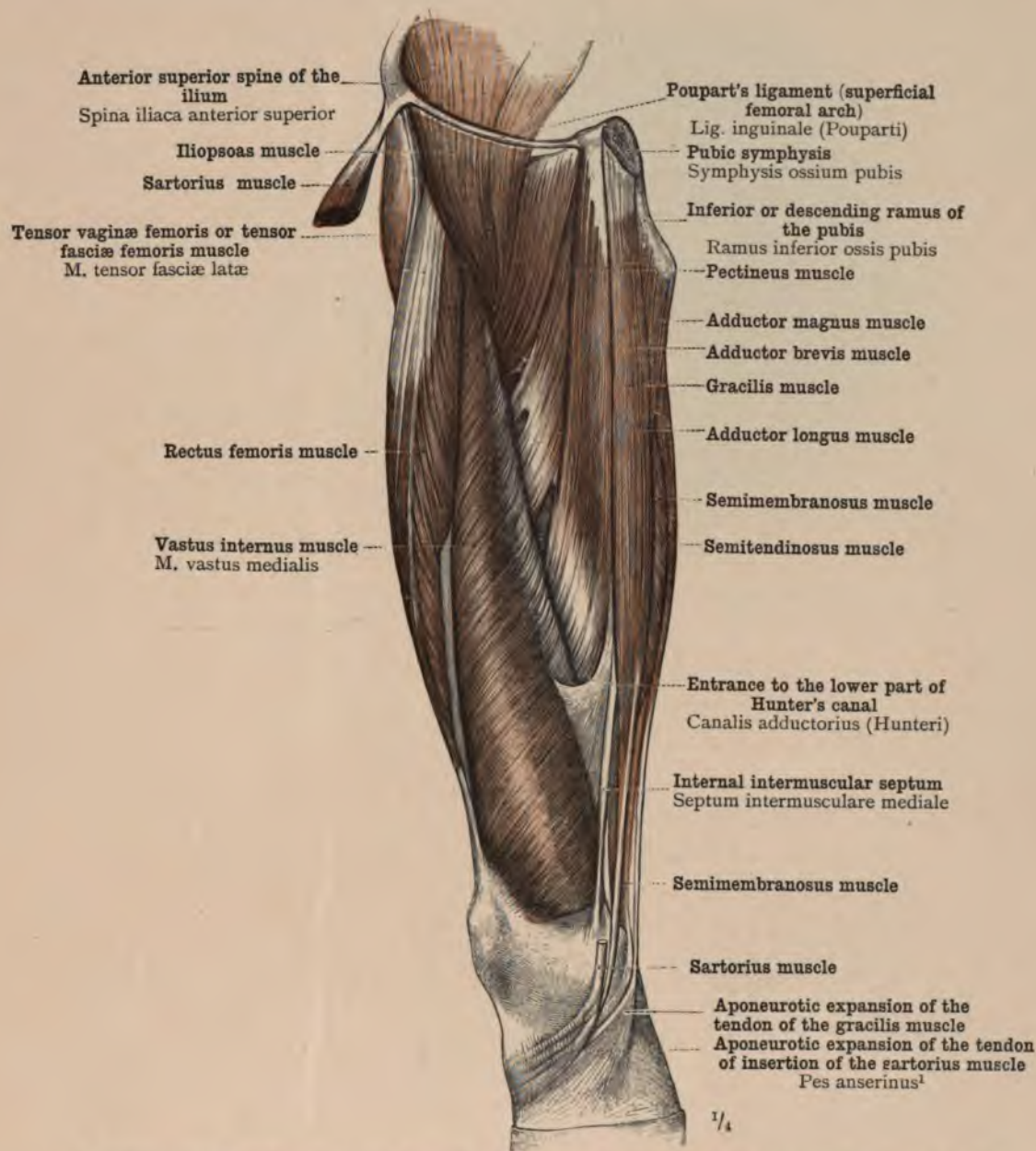


FIG. 599.—ANTERIOR AND INTERNAL MUSCLES OF THE RIGHT THIGH, AS SEEN FROM BEFORE WITH THE LIMB ROTATED OUTWARDS: SARTORIUS MUSCLE; PORTIONS OF THE QUADRICEPS EXTENSOR CRURIS MUSCLE, OF THE INTERNAL FEMORAL OR ADDUCTOR MUSCLES, AND OF THE ILIOPSOAS MUSCLE. *ILIOPECTINEAL FOSSA. THE TRIANGULAR AREA, THE BASE OF WHICH IS FORMED BY POUPART'S LIGAMENT, THE SIDES BY THE SARTORIUS AND ADDUCTOR LONGUS MUSCLES, RESPECTIVELY, AND THE FLOOR BY THE ILIOPSOAS AND PECTINEUS MUSCLES, IS KNOWN AS SCARPA'S TRIANGLE (FOSSA SCARPÆ MAJOR, TRIGONUM FEMORALE). PREPATELLAR AND INFRA-PATELLAR SUBCUTANEOUS BURSÆ.

In the region of the knee the fascia lata has not been removed.

Musculi femoris—Muscles of the thigh.



¹ *Pes Anserinus*.—The tendon of insertion of the sartorius muscle sends off from its upper border an aponeurotic expansion to join that of the common extensor over the front of the capsule of the knee-joint, and from its lower border another to the deep fascia of the leg; immediately below and behind this latter is a similar aponeurotic expansion from the tendon of insertion of the gracilis muscle to the deep fascia of the leg. From the resemblance of the aponeurotic expansions of the sartorius tendon to the foot of a goose, it is called by the author *pēs anserinus*, but it is to be noted that this name is given by English anatomists to an entirely different structure—to wit, the plexus formed in the substance of the parotid gland and on the side of the face by the freely communicating twigs of the temporofacial and cervicofacial branches of the facial nerve, known also as the "parotid plexus" (see Fig. 1314, p. 871, sect. vi. of this work).—TR.

FIG. 600.—ANTERIOR AND INTERNAL MUSCLES OF THE RIGHT THIGH, AS SEEN FROM BEFORE WITH THE LIMB ROTATED OUTWARDS, THE SARTORIUS MUSCLE HAVING BEEN REMOVED. OF THE QUADRICEPS EXTENSOR CRURIS MUSCLE, WE SEE THE LONG HEAD, THE RECTUS FEMORIS MUSCLE, AND THE INNER HEAD, THE VASTUS INTERNUS MUSCLE: OF THE INTERNAL FEMORAL OR ADDUCTOR MUSCLES, WE SEE THE GRACILIS, ADDUCTOR LONGUS, ADDUCTOR BREVIS, AND PECTINEUS MUSCLES. BEHIND THE GRACILIS MUSCLES WE SEE PORTIONS OF THE POSTERIOR FEMORAL OR HAMSTRING MUSCLES: SEMIMEMBRANOSUS MUSCLE AND SEMITENDINOSUS MUSCLE. BENEATH THE SARTORIUS MUSCLE AND BETWEEN THE VASTUS INTERNUS MUSCLE, ON THE OUTER SIDE, AND THE ADDUCTOR LONGUS (ABOVE) AND THE ADDUCTOR MAGNUS (BELOW), ON THE INNER SIDE, LIES HUNTER'S CANAL (CANALIS ADDUCTORIUS HUNTERI), THE FASCIAL ROOF OF WHICH HAS BEEN REMOVED EXCEPT FOR A SHORT SPACE AT THE LOWER END OF THE CANAL.

Musculi femoris—Muscles of the thigh.

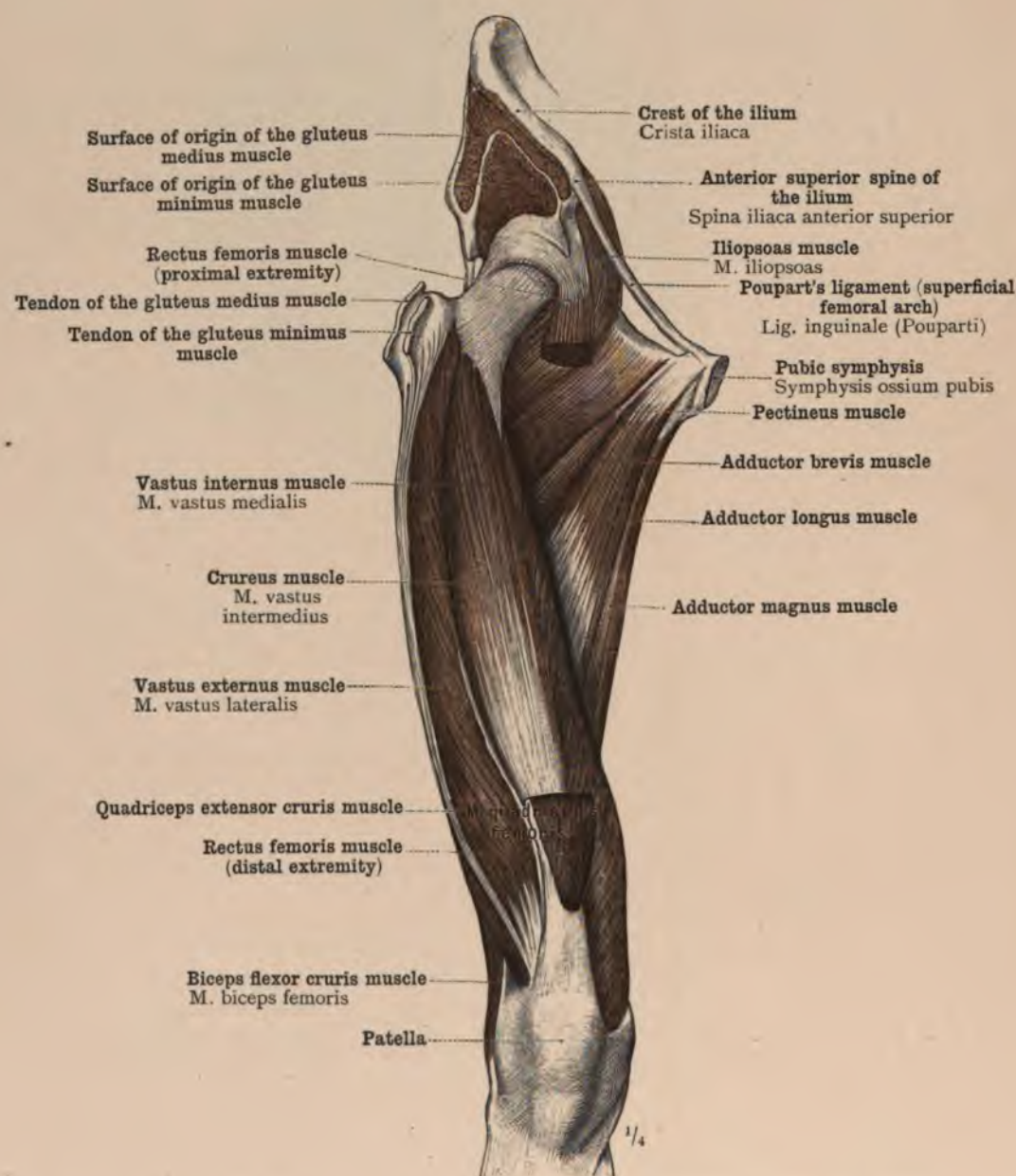
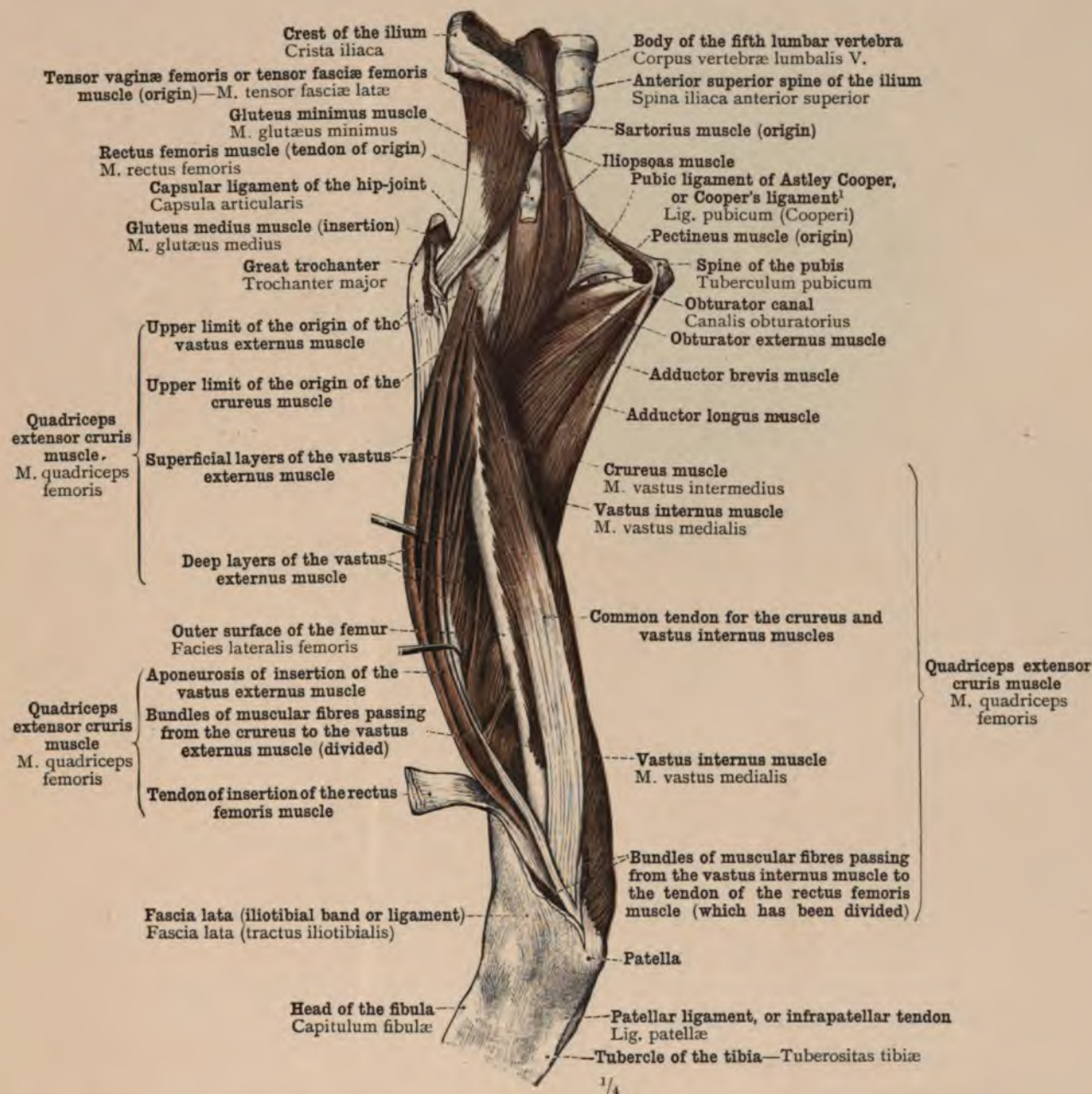


FIG. 601.—ANTERIOR AND INTERNAL MUSCLES OF THE RIGHT THIGH, WITH THE LIMB IN THE NORMAL POSITION, THE SARTORIUS, GRACILIS, AND RECTUS FEMORIS MUSCLES HAVING BEEN REMOVED. SEEN FROM BEFORE. VASTUS EXTERNUS, CRUREUS, AND VASTUS INTERNUS MUSCLES, THE OUTER, MIDDLE, AND INNER HEADS OF THE QUADRICEPS EXTENSOR CRURIS MUSCLES; ADDUCTOR LONGUS AND ADDUCTOR BREVIS MUSCLES, AND THE INNER PORTION OF THE ADDUCTOR MAGNUS MUSCLE; PECTINEUS MUSCLE.

Musculi femoris—Muscles of the thigh.



¹ See note ² to p. 390.

FIG. 602.—STRATIFICATION OF THE VASTUS EXTERNUS MUSCLE, AS SEEN AFTER THE REMOVAL OF THE RECTUS FEMORIS MUSCLE, THE LAYERS OF THE VASTUS EXTERNUS MUSCLE HAVING BEEN WELL SEPARATED FROM THE FEMUR. OUTER LIMIT OF ORIGIN OF THE CRUREUS (VASTUS INTERMEDIUS) MUSCLE. STRATIFICATION OF THE TENDONS (APONEUROSSES) OF THE VASTUS EXTERNUS, CRUREUS, AND RECTUS FEMORIS MUSCLES ABOVE THE KNEE-JOINT.

The thigh, which has been rotated inwards, is seen from before. The bundles of the vastus externus muscle that arise from the fascia lata are shown in Fig. 616.

Musculi femoris—Muscles of the thigh.

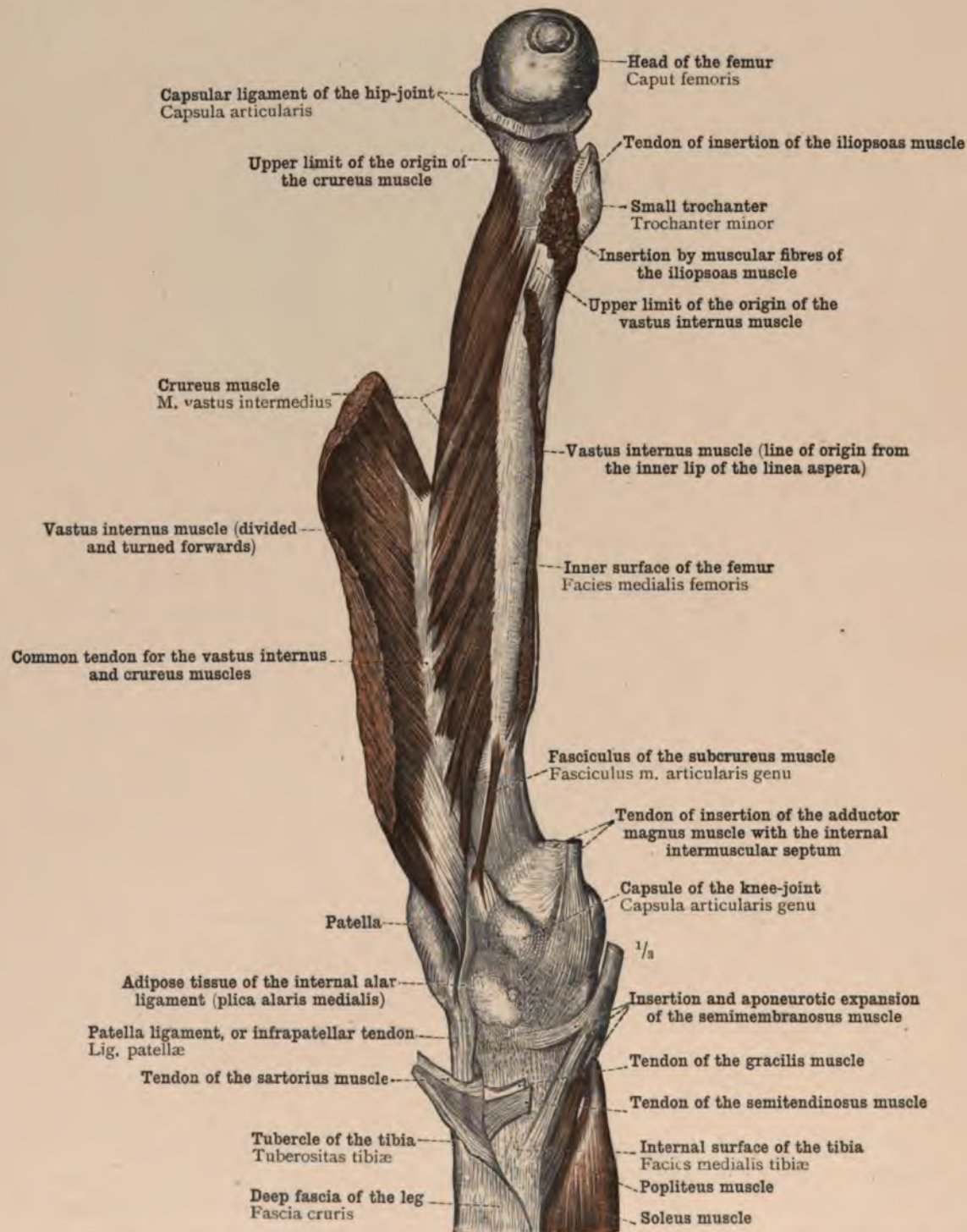
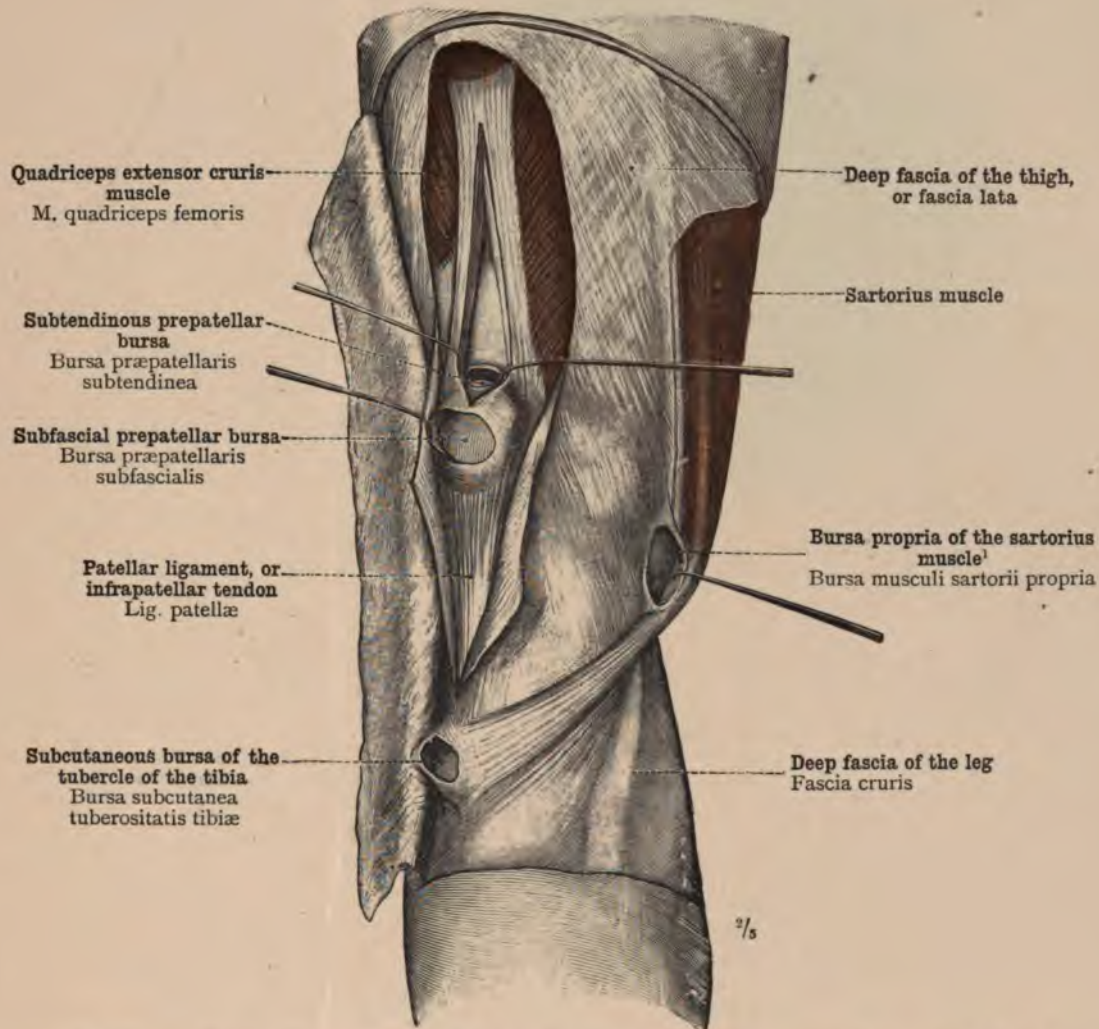


FIG. 603.—INNER LIMIT OF THE ORIGIN OF THE CRUREUS (VASTUS INTERMEDIUS) MUSCLE, AND THE BLENDING OF THE FASCICULI OF THAT MUSCLE WITH THOSE OF THE VASTUS INTERNUS (VASTUS MEDIALIS) MUSCLE IN THEIR INSERTION INTO THE DEEP APONEUROSIS OF THE QUADRICEPS EXTENSOR CRURIS MUSCLE. RIGHT THIGH, SEEN FROM WITHIN.

The vastus internus muscle has been divided longitudinally throughout its entire length, and has been turned forwards.

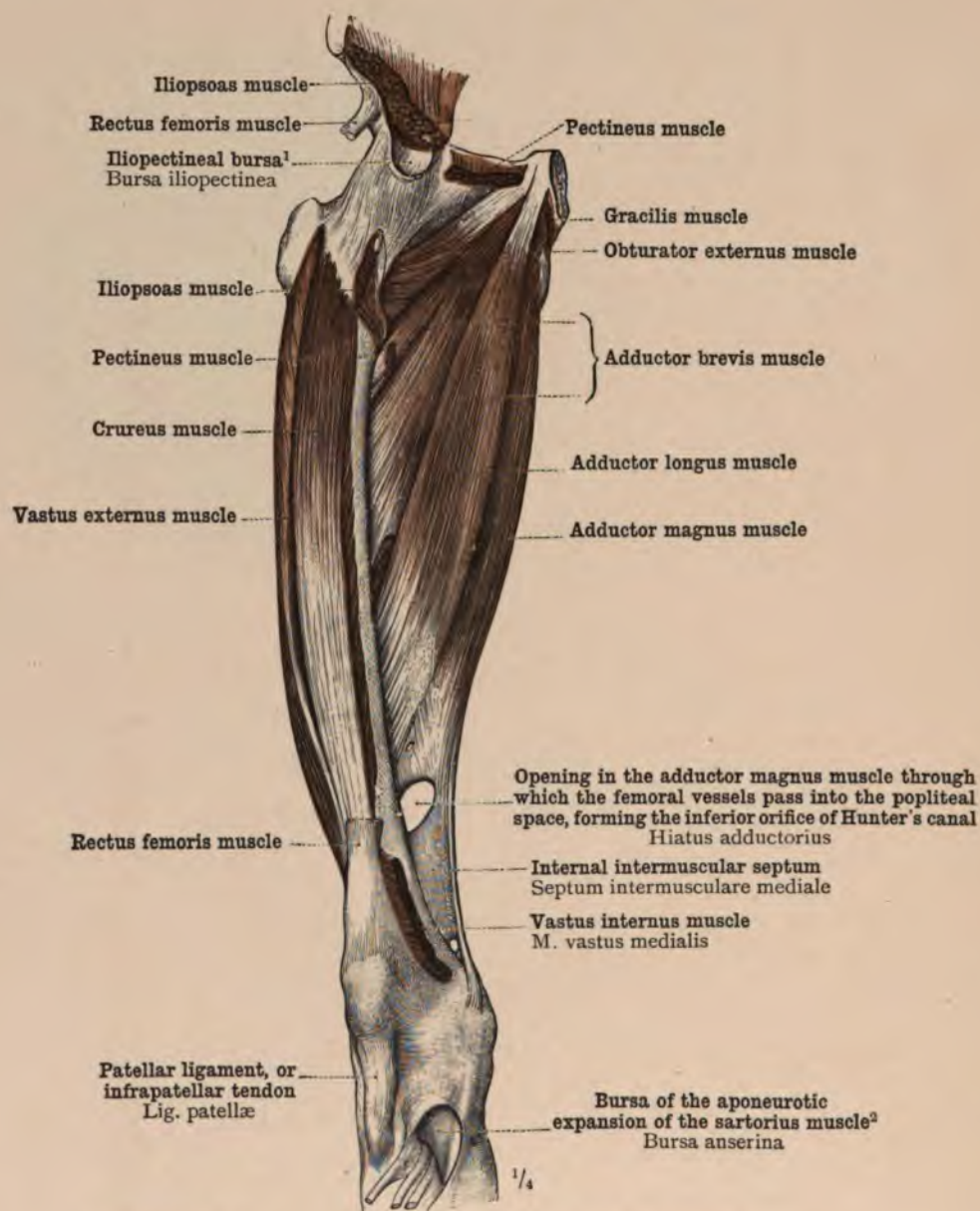
Musculi femoris—Muscles of the thigh.



¹ The *bursa propria of the sartorius muscle* is situated between the sartorius muscle and the upper part of the capsule of the knee-joint at the point where the muscle becomes tendinous. It is to be distinguished from a more distally situated bursa beneath the aponeurotic expansion of the tendon of the sartorius, called by the author *bursa anserina*. See note ² to p. 362.—TR.

FIG. 604.—DEMONSTRATION OF CERTAIN BURSÆ IN THE ANTERIOR REGION OF THE KNEE. BURSA PROPRIA OF THE SARTORIUS MUSCLE. SUBCUTANEOUS BURSA OF THE TUBERCLE OF THE TIBIA. REGION OF THE RIGHT KNEE, SEEN OBLIQUELY FROM BEFORE AND WITHIN.

The subfascial prepatellar bursa was opened by a longitudinal incision through the fascia lata over the front of the patella, and the subtendinous prepatellar bursa was opened by a longitudinal incision through the common tendon of the quadriceps extensor cruris muscle (suprapatellar tendon) immediately above the patella.



¹ See note 5 to p. 348.

² See note ¹ to p. 362.

FIG. 605.—INTERNAL FEMORAL OR ADDUCTOR MUSCLES, DISPLAYED BY THE REMOVAL OF THE SARTORIUS, GRACILIS, PECTINEUS, RECTUS FEMORIS, AND VASTUS INTERNUS MUSCLES, THE LIMB BEING ROTATED OUTWARDS. RIGHT THIGH, SEEN FROM BEFORE. ADDUCTOR BREVIS AND ADDUCTOR LONGUS MUSCLES; INNER PORTION OF THE ADDUCTOR MAGNUS MUSCLE, WITH THE INTERNAL INTERMUSCULAR SEPTUM, AND THE OPENING (HIATUS ADDUCTORIUS) THROUGH WHICH THE FEMORAL VESSELS PASS INTO THE POPLITEAL SPACE. (THIS OPENING CONSTITUTES THE INFERIOR ORIFICE OF HUNTER'S CANAL.) OBTURATOR EXTERNUS MUSCLE. BURSA OF THE APONEUROTIC EXPANSION OF THE SARTORIUS MUSCLE (BURSA ANSERINA) (see note ¹ to p. 362).

Musculi femoris—Muscles of the thigh.

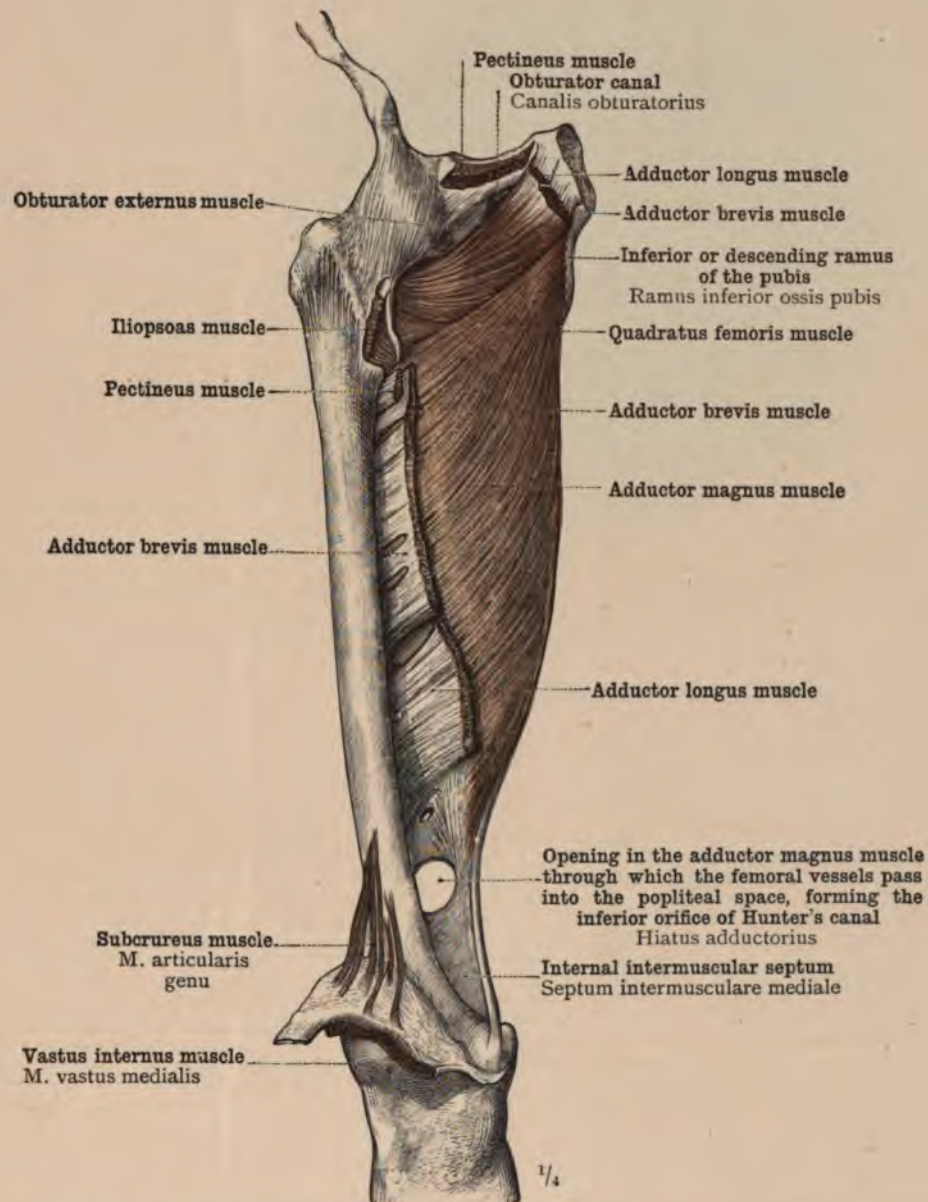
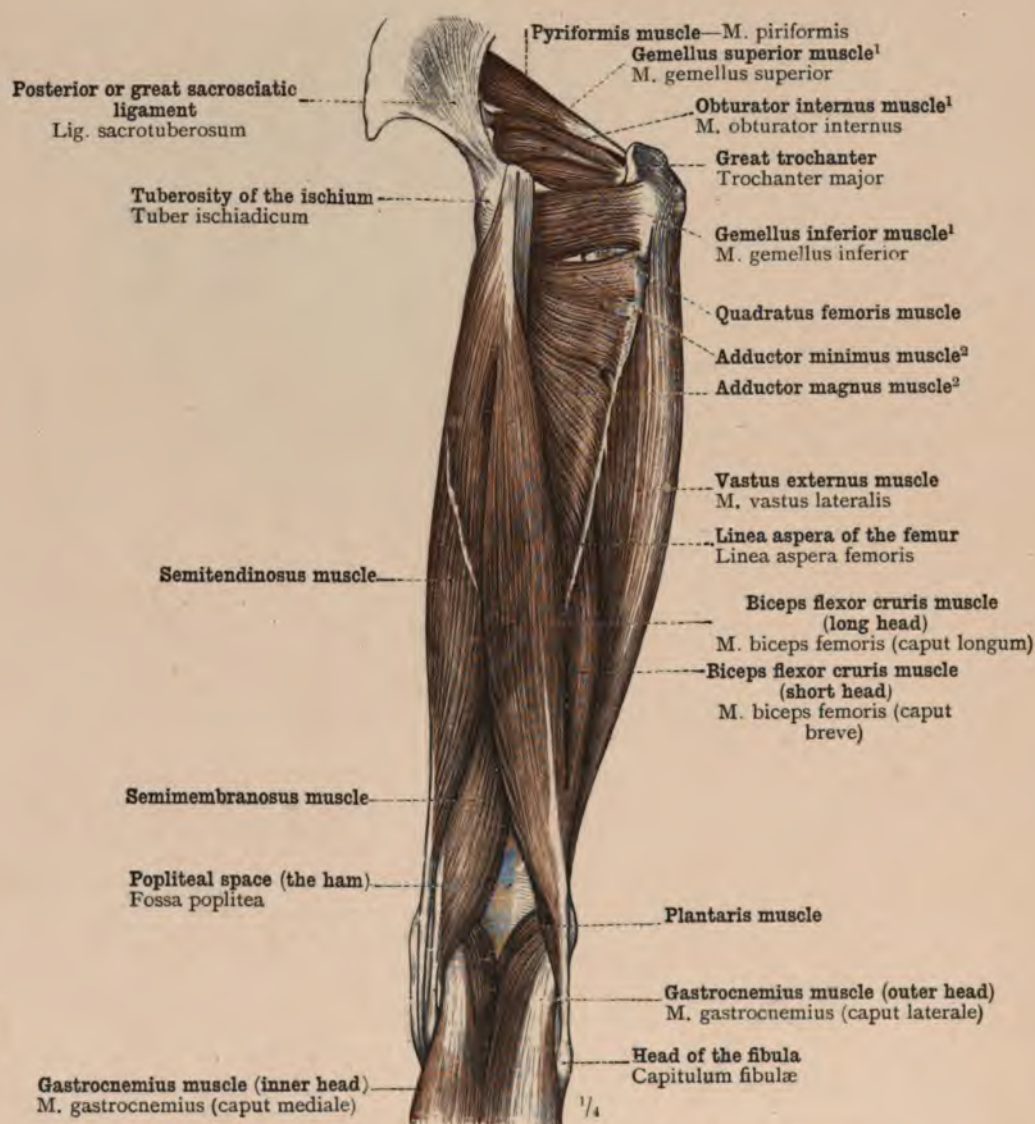


FIG. 606.—ADDUCTOR MAGNUS MUSCLE WITH THE INTERNAL INTERMUSCULAR SEPTUM AND THE OPENING (HIATUS ADDUCTORIUS) THROUGH WHICH THE FEMORAL VESSELS PASS INTO THE POPLITEAL SPACE. (THIS OPENING CONSTITUTES THE INFERIOR ORIFICE OF HUNTER'S CANAL.) RIGHT THIGH, SEEN FROM BEFORE. OBTURATOR EXTERNUS MUSCLE. SUBCRUREUS MUSCLE.

The quadriceps extensor cruris, pectineus, adductor longus, and adductor brevis muscles have been removed. The limb is in the position of external rotation.

Musculi femoris—Muscles of the thigh.



¹ See note ¹ to p. 340.

² See note ² to p. 345.

FIG. 607.—MUSCLES ON THE POSTERIOR AND OUTER SIDES OF THE RIGHT THIGH, THE LIMB BEING ROTATED INWARDS. SEEN FROM BEHIND. BICEPS FLEXOR CRURIS MUSCLE; SEMITENDINOSUS MUSCLE; DISTAL PORTION OF THE SEMIMEMBRANOSUS MUSCLE. RELATIONS OF THE GASTROCNEMIUS MUSCLE TO THESE MUSCLES. POPLITEAL SPACE (THE HAM). QUADRATUS FEMORIS MUSCLE, WITH THE ADDUCTOR MAGNUS MUSCLE (see note ² above) IN CONTACT WITH ITS LOWER BORDER. ADDUCTOR MINIMUS MUSCLE (see note ² above), NOT CLEARLY SEPARABLE ABOVE FROM THE ADDUCTOR MAGNUS MUSCLE (see note ² above). VASTUS EXTERNUS MUSCLE, THE OUTER HEAD OF THE QUADRICEPS EXTENSOR CRURIS MUSCLE.

Musculi femoris—Muscles of the thigh.

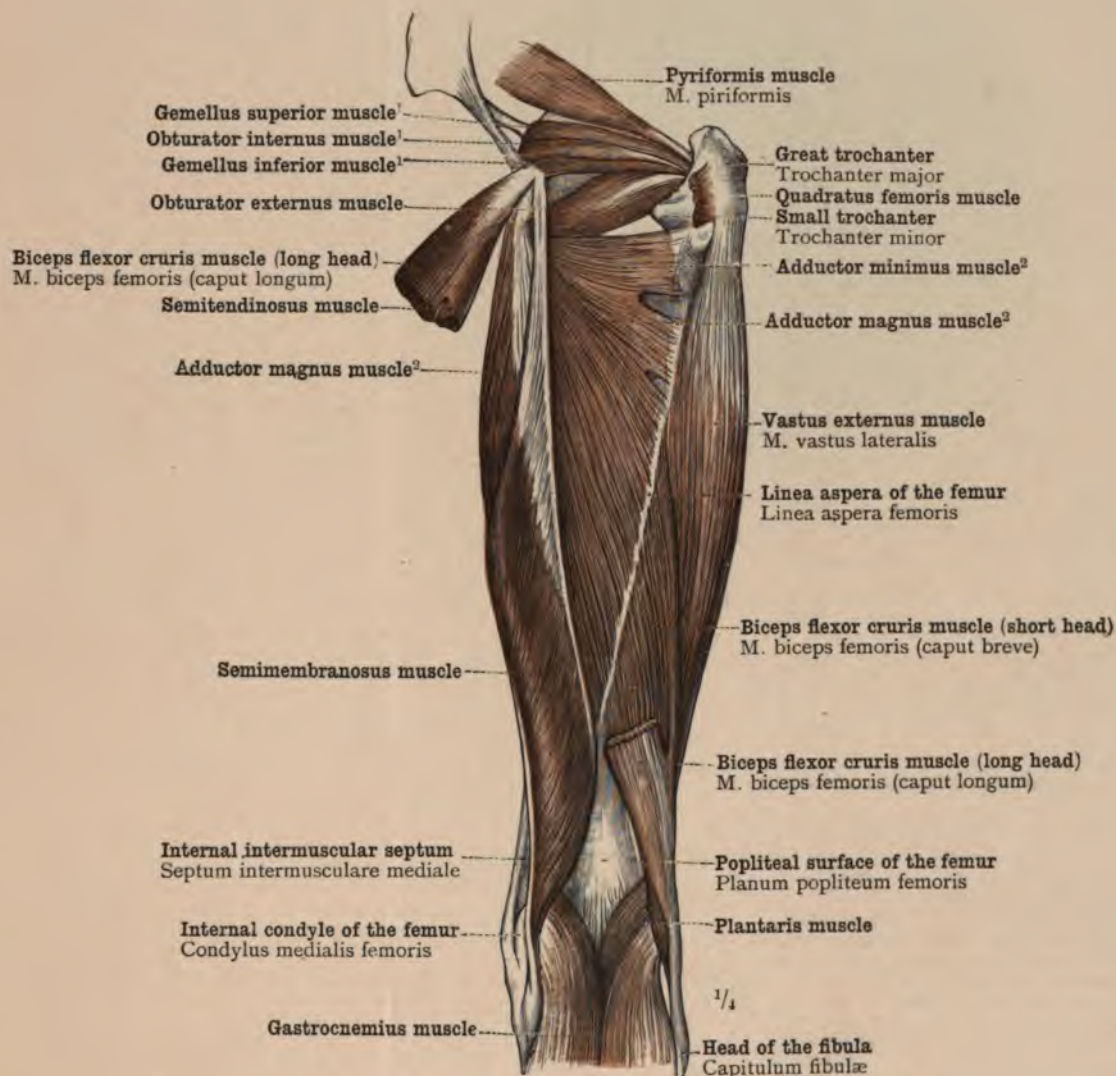
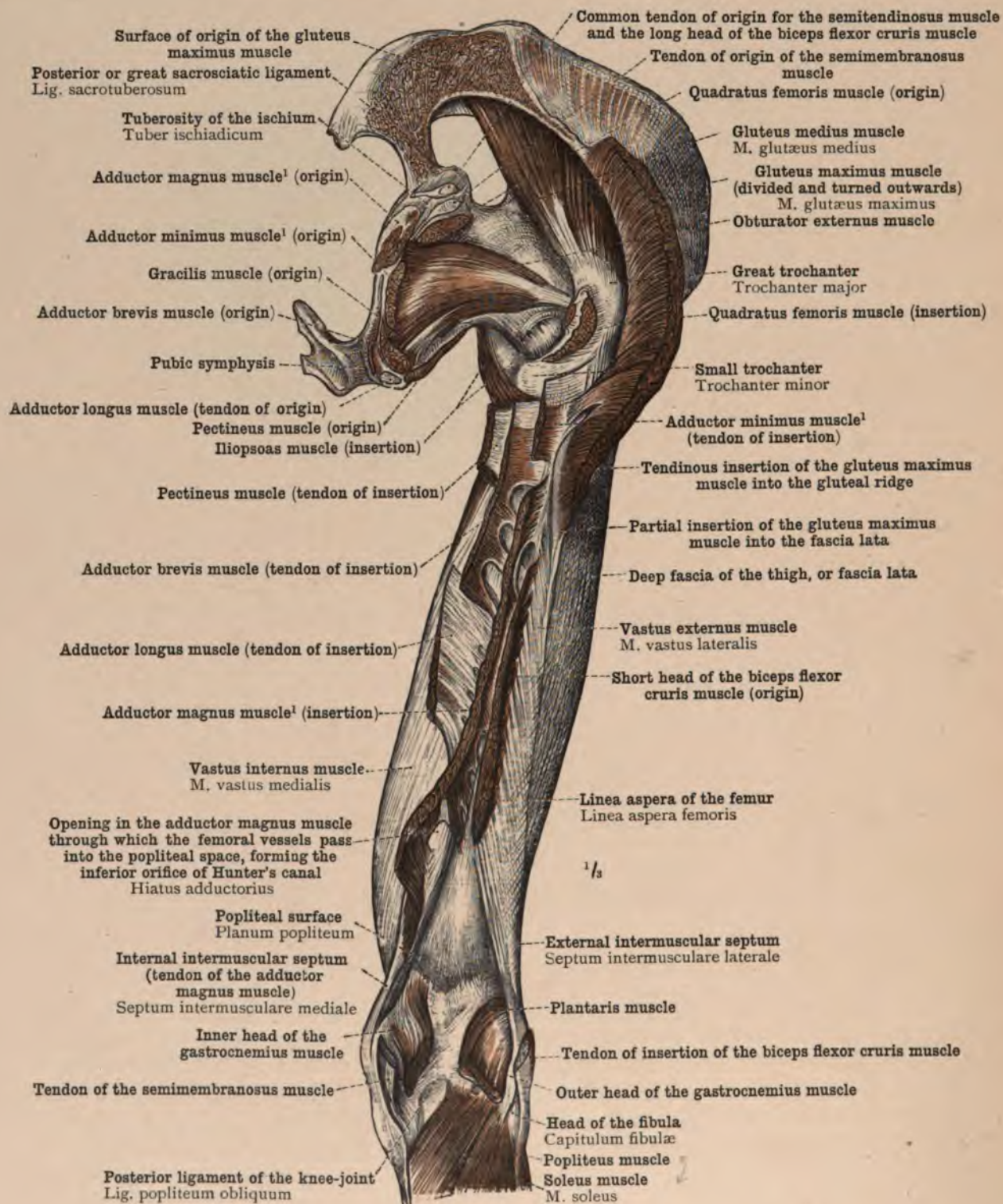
¹ See note ¹ to p. 340.² See note ² to p. 345.

FIG. 608.—MUSCLES AT THE BACK OF THE RIGHT THIGH, THE LIMB BEING ROTATED INWARDS, THE LONG HEAD OF THE BICEPS FLEXOR CRURIS AND THE SEMITENDINOSUS MUSCLE HAVING BEEN REMOVED. SEEN FROM BEHIND. SEMIMEMBRANOSUS MUSCLE; SHORT HEAD OF THE BICEPS FLEXOR CRURIS MUSCLE; ADDUCTOR MAGNUS (see note ² above) AND ADDUCTOR MINIMUS (see note ² above) MUSCLES; VASTUS EXTERNUS MUSCLE.

By the removal of the quadratus femoris muscle, the outer portion of the obturator externus muscle has been exposed.

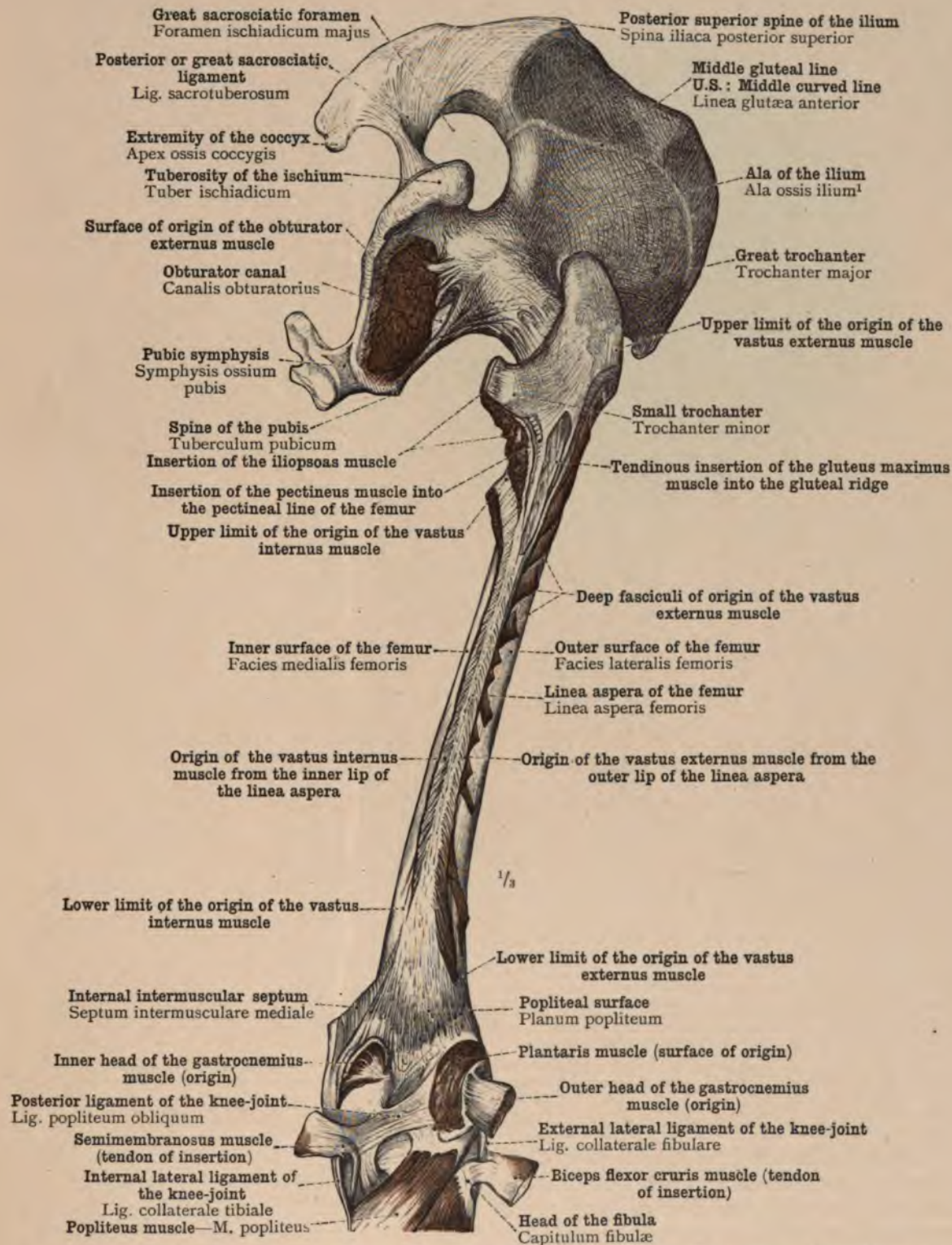
Musculi femoris—Muscles of the thigh.



¹ See note 2 to p. 345.

FIG. 609.—ATTACHMENT OF MUSCLES (ORIGINS AND INSERTIONS) TO THE OUTER ASPECT OF THE HIP-BONE AND TO THE POSTERIOR ASPECT OF THE FEMUR. RIGHT SIDE, SEEN FROM BEHIND.

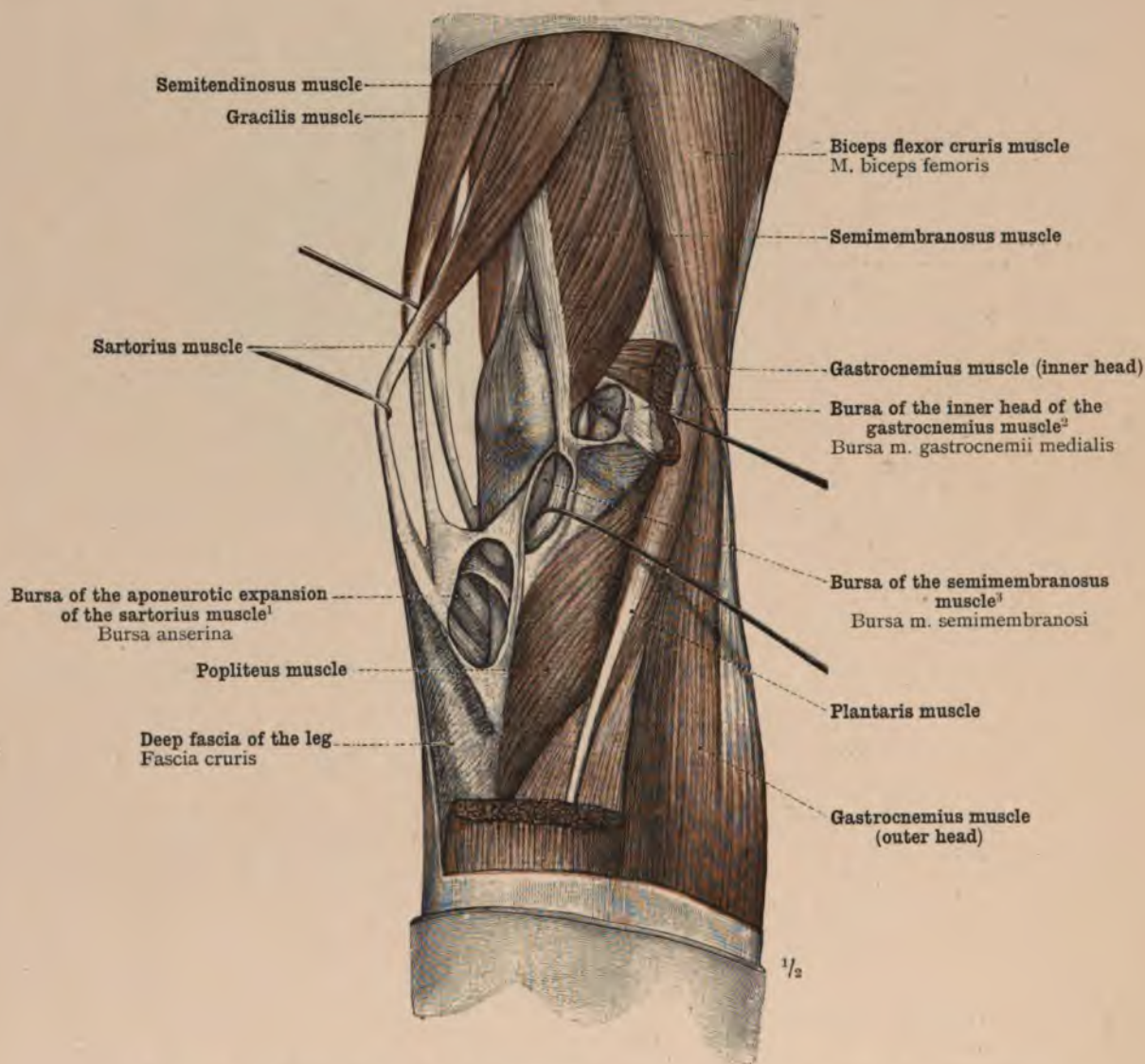
Musculi femoris—Muscles of the thigh.



¹ The author treats *ilium* as an indeclinable noun, and I have followed him here, as in the section on Osteology, in writing *ala ossis ilium* instead of *ala ossis illi*. English anatomists, however, when using Latin terminology, generally decline *ilium*, speaking of *dorsum illi*, etc.—Tr.

FIG. 610.—ATTACHMENT OF MUSCLES (ORIGINS AND INSERTIONS) TO THE POSTERIOR ASPECT OF THE RIGHT FEMUR.

Musculi femoris—Muscles of the thigh.



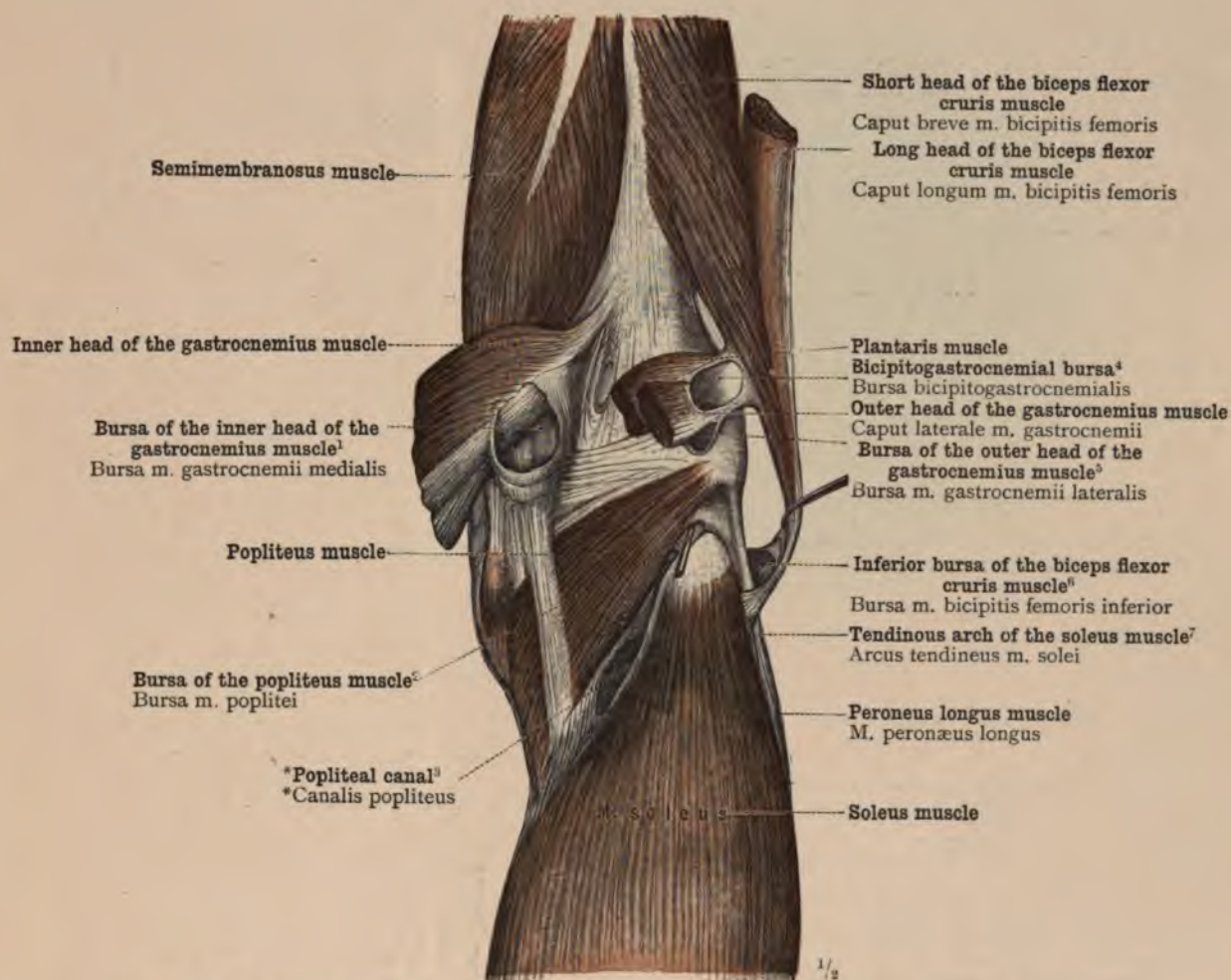
¹ The bursa of the aponeurotic expansion of the sartorius muscle (called by the author *bursa anserina*) is situated between the root of the aponeurotic expansion of the tendon of insertion of the sartorius muscle (*pes anserinus*, according to Toldt, see Fig. 600, p. 351, and note ¹ on same page) and the subjacent tendons of insertion of the gracilis and semitendinosus muscles. A prolongation of the bursa passes more deeply between these latter tendons and the subjacent internal lateral ligament of the knee-joint.—Tr.

² The bursa of the inner head of the gastrocnemius muscle is situated between the inner head of origin of the gastrocnemius muscle and the tendon of the semimembranosus muscle. This bursa frequently communicates with the knee-joint. Higher up, between the tendon of the inner head of the gastrocnemius muscle and the femur, there is usually a second, smaller synovial bursa, which may also communicate with the knee-joint.—Tr.

³ The bursa of the semimembranosus muscle is situated between the tendon of insertion of the semimembranosus muscle and the prominent upper margin of the groove on the internal tuberosity of the tibia into which the semimembranosus muscle is mainly inserted.—Tr.

FIG. 611.—REGION OF THE KNEE, SEEN OBLIQUELY FROM BEHIND AND WITHIN. RIGHT LIMB. BURSÆ (SUBTENDINOUS MUCOUS BURSÆ) IN THE INNER PART OF THE POSTERIOR REGION OF THE KNEE, AS SEEN AFTER DIVISION OF THE INNER HEAD OF THE GASTROCNEMIUS MUSCLE: BURSA OF THE INNER HEAD OF THE GASTROCNEMIUS MUSCLE, BURSA OF THE SEMIMEMBRANOSUS MUSCLE, BURSA OF THE APONEUROTIC EXPANSION OF THE SARTORIUS MUSCLE (BURSA ANSERINA).

Bursæ mucosæ regionis genu posterioris—Bursæ of the posterior region of the knee.



¹ See note ² to p. 362.

² The bursa of the popliteus muscle (so-called) is an expansion of the synovial cavity of the knee-joint passing downwards between the tendon of origin of the popliteus muscle and the back of the outer tuberosity of the tibia.—Tr.

³ *Popliteal Canal.—This name is not used by English anatomists. It is given by the author to the space beneath (anterior to) the tendinous arch of the soleus muscle (see note 7 on this page) through which the posterior tibial vessels and nerve pass from the popliteal space beneath the soleus muscle.—Tr.

⁴ The bicipitogastrocnemial bursa is situated between the biceps flexor cruris muscle and the outer head of the gastrocnemius muscle.—Tr.

⁵ The bursa of the outer head of the gastrocnemius muscle is situated beneath the tendon of origin of the outer head of the gastrocnemius muscle, between that tendon and the femur.—Tr.

⁶ The inferior bursa of the biceps flexor cruris muscle is situated between the tendon of insertion of that muscle and the external lateral ligament of the knee-joint.—Tr.

⁷ The tendinous arch of the soleus muscle, passing from the upper part of the back of the fibula obliquely downwards and inwards to the upper part of the back of the tibia, arches over the tibial vessels and nerve, and serves for the origin of the middle fibres of the soleus muscle.—Tr.

FIG. 612.—REGION OF THE KNEE, SEEN FROM BEHIND. RIGHT LIMB. BURSÆ (SUBTENDINOUS MUCOUS BURSÆ) IN THE OUTER PART OF THE POSTERIOR REGION OF THE KNEE, AS SEEN AFTER REMOVAL OF BOTH HEADS OF THE GASTROCNEMIUS MUSCLE AND OF THE PLANTARIS MUSCLE: BICIPITOGASTROCNEMIAL BURSA, BURSA OF THE OUTER HEAD OF THE GASTROCNEMIUS MUSCLE, INFERIOR BURSA OF THE BICEPS FLEXOR CRURIS MUSCLE, BURSA OF THE POPLITEUS MUSCLE, BURSA OF THE INNER HEAD OF THE GASTROCNEMIUS MUSCLE. TENDINOUS ARCH OF THE SOLEUS MUSCLE, AND BENEATH IT (ANTERIORLY) THE ENTRANCE TO THE *POPLITEAL CANAL.

Bursæ mucosæ regionis genu posterioris—Bursæ of the posterior region of the knee.



¹ Immediately behind and below the external malleolus the tendons of the peroneus longus and brevis muscles are contained in a single synovial sheath, the fibrous strand which binds them down, passing from the point of the outer malleolus to the outer side of the calcaneum, being called by the author *retinaculum mm. peronaeorum superius* (see Fig. 615, p. 366), and by English anatomists *the external annular ligament of the ankle*. More distally, on the outer side of the calcaneum, each tendon has its own sheath, the two being separated by a fibrous septum and by the trochlear process or peroneal spine of the calcaneum, when that process exists. The fibrous band which binds the two tendons to the calcaneum has received no special name from English anatomists, but is called by the author *retinaculum mm. peronaeorum inferius* (see Fig. 613, *supra*, Fig. 615, p. 366, and Fig. 621, p. 372).—Tr.

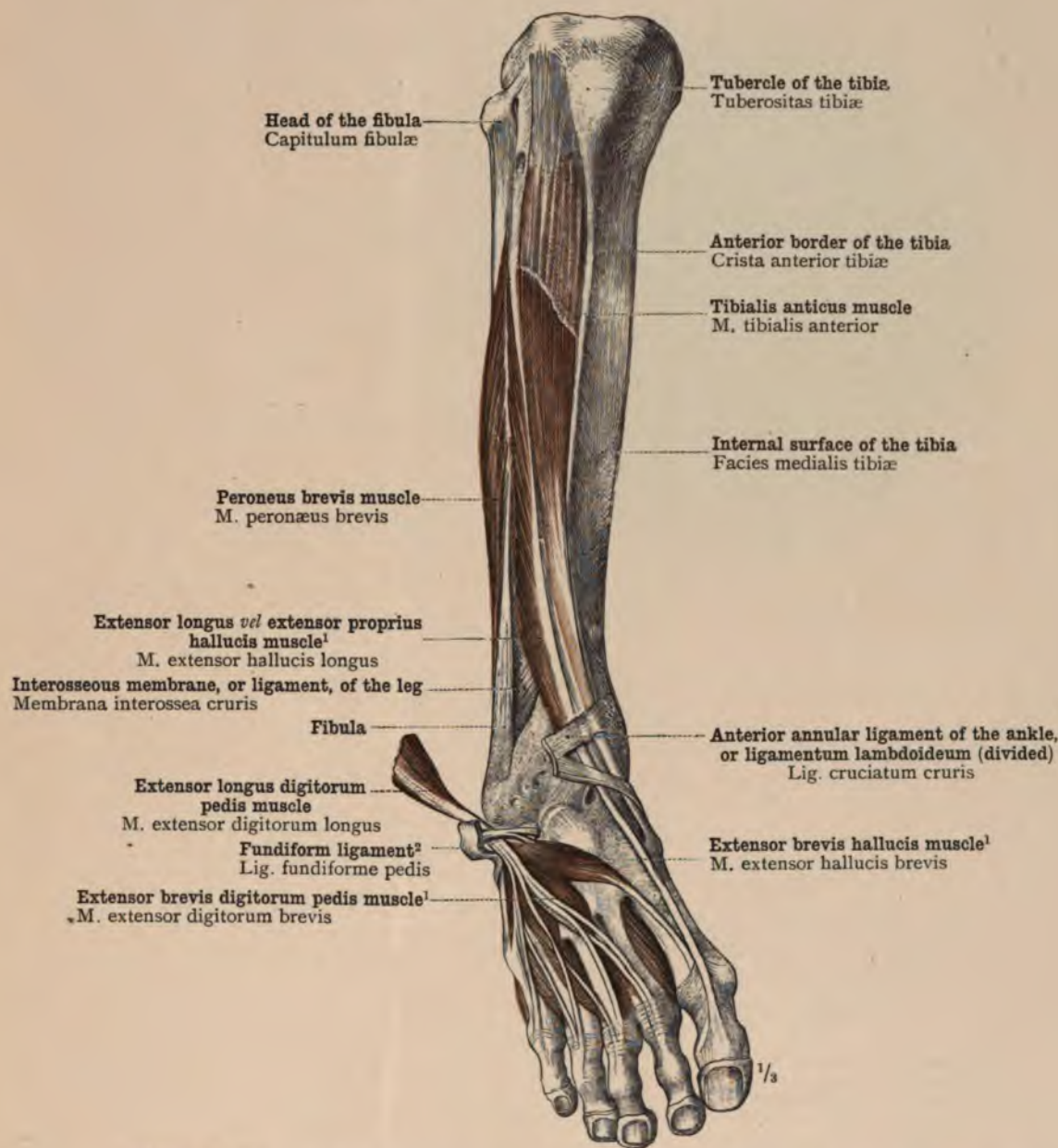
² By many English anatomists the *extensor brevis hallucis* muscle is regarded, not as an independent muscle, but merely as the innermost slip of the *extensor digitorum pedis* muscle, and under these circumstances the *extensor longus hallucis* muscle is termed *extensor proprius hallucis*.—Tr.

³ The name *opponens minimi digiti (pedis)* is sometimes given to that portion of the *flexor brevis minimi digiti pedis* muscle which is inserted into the fifth metatarsal bone (the bulk of the muscle being inserted into the base and external border of the proximal phalanx. Occasionally (3.5 per cent.) this portion of the muscle is entirely separate from the rest; while somewhat more frequently (10 per cent.) the insertion of the flexor brevis minimi digiti into the metatarsal bone is entirely wanting).—Tr.

FIG. 613.—MUSCLES ON THE FRONT OF THE RIGHT LEG: TIBIALIS ANTICUS MUSCLE; EXTENSOR LONGUS DIGITORUM PEDIS MUSCLE, WITH THE PERONEUS TERTIUS MUSCLE; EXTENSOR LONGUS *VEL* EXTENSOR PROPRIUS HALLUCIS MUSCLE (see note ² above). ANTERIOR (PERONEAL) INTERMUSCULAR SEPTUM. EXTENSOR BREVIS DIGITORUM MUSCLE (see note ² above). BURSA OF THE SINUS OF THE TARSUS.

That portion of the deep fascia of the leg from which numerous fasciculi of the two first-named muscles arise has been retained, also that portion which covers the peronei muscles on the outer side of the leg, and the anterior annular ligament of the ankle (ligamentum lambdoideum, ligamentum cruciatum cruris).

Musculi cruris—Muscles of the leg.



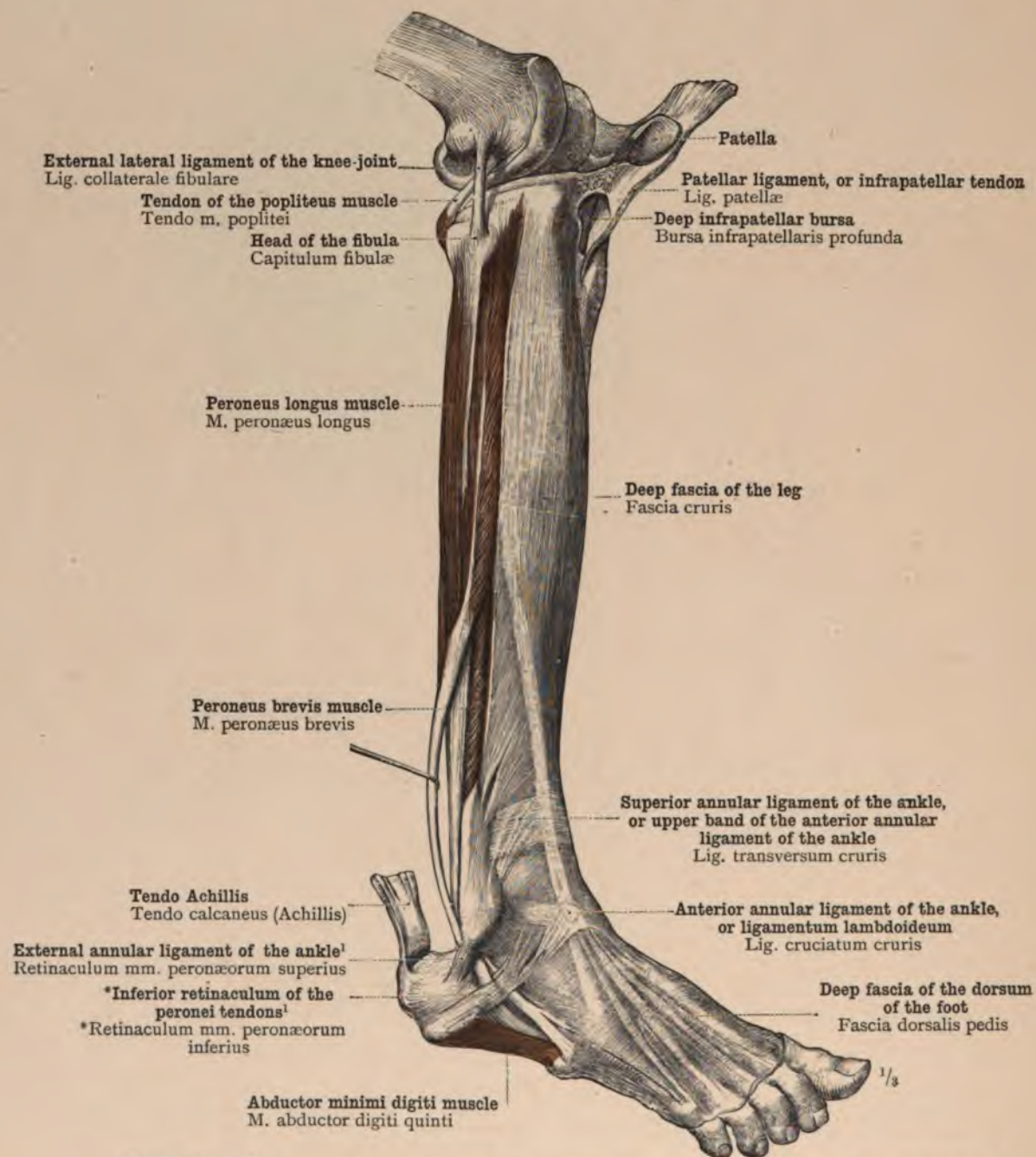
¹ See note ² to p. 364.

² The *fundiform ligament* of Retzius is the name given to the single outer half of the <-shaped lower band of the anterior annular ligament of the ankle; attached externally to the calcaneum, it projects upwards and inwards, forming a loop through which the tendons of the extensor longus digitorum pedis and peroneus tertius muscles pass from the front of the leg to the dorsum of the foot.—Tr.

FIG. 614.—MUSCLES ON THE FRONT OF THE RIGHT LEG, THE EXTENSOR LONGUS DIGITORUM PEDIS AND PERONEUS TERTIUS MUSCLES HAVING BEEN REMOVED: EXTENSOR LONGUS *VEL* EXTENSOR PROPRIUS HALLUCIS MUSCLE; TIBIALIS ANTICUS MUSCLE.

By the removal of the peroneus longus muscle, the fleshy belly of the peroneus brevis muscle has been laid bare. The anterior annular ligament of the ankle (ligamentum lambdoideum, ligamentum cruciatum cruris) has been divided between the tendons of the extensor longus digitorum pedis and the extensor longus *vel* extensor proprius hallucis muscles, and the outer portion of this ligament has been turned downwards, in order to demonstrate the loop of the fundiform ligament of Retzius (*see note² above*) surrounding the tendons of the extensor longus digitorum pedis and peroneus tertius muscles.

Musculi cruris—Muscles of the leg.



¹ See note ¹ to p. 364.

² According to English anatomists, the *femoral* attachment of the popliteus is the *origin* of that muscle, and the *tibial* attachment its *insertion*.—T.E.

FIG. 615.—MUSCLES ON THE OUTER SIDE OF THE RIGHT LEG: PERONEUS LONGUS MUSCLE; PERONEUS BREVIS MUSCLE. TENDON OF INSERTION OF THE POPLITEUS MUSCLE (see note ² above). DEEP INFRAPATELLAR BURSA. DEEP FASCIA OF THE LEG AND DEEP FASCIA OF THE DORSUM OF THE FOOT. SUPERIOR ANNULAR LIGAMENT OF THE ANKLE (LIGAMENTUM TRANSVERSUM CRURIS) AND ANTERIOR ANNULAR LIGAMENT OF THE ANKLE (LIGAMENTUM LAMBOIDEUM, LIGAMENTUM CRUCIATUM CRURIS).

Musculi cruris—Muscles of the leg.

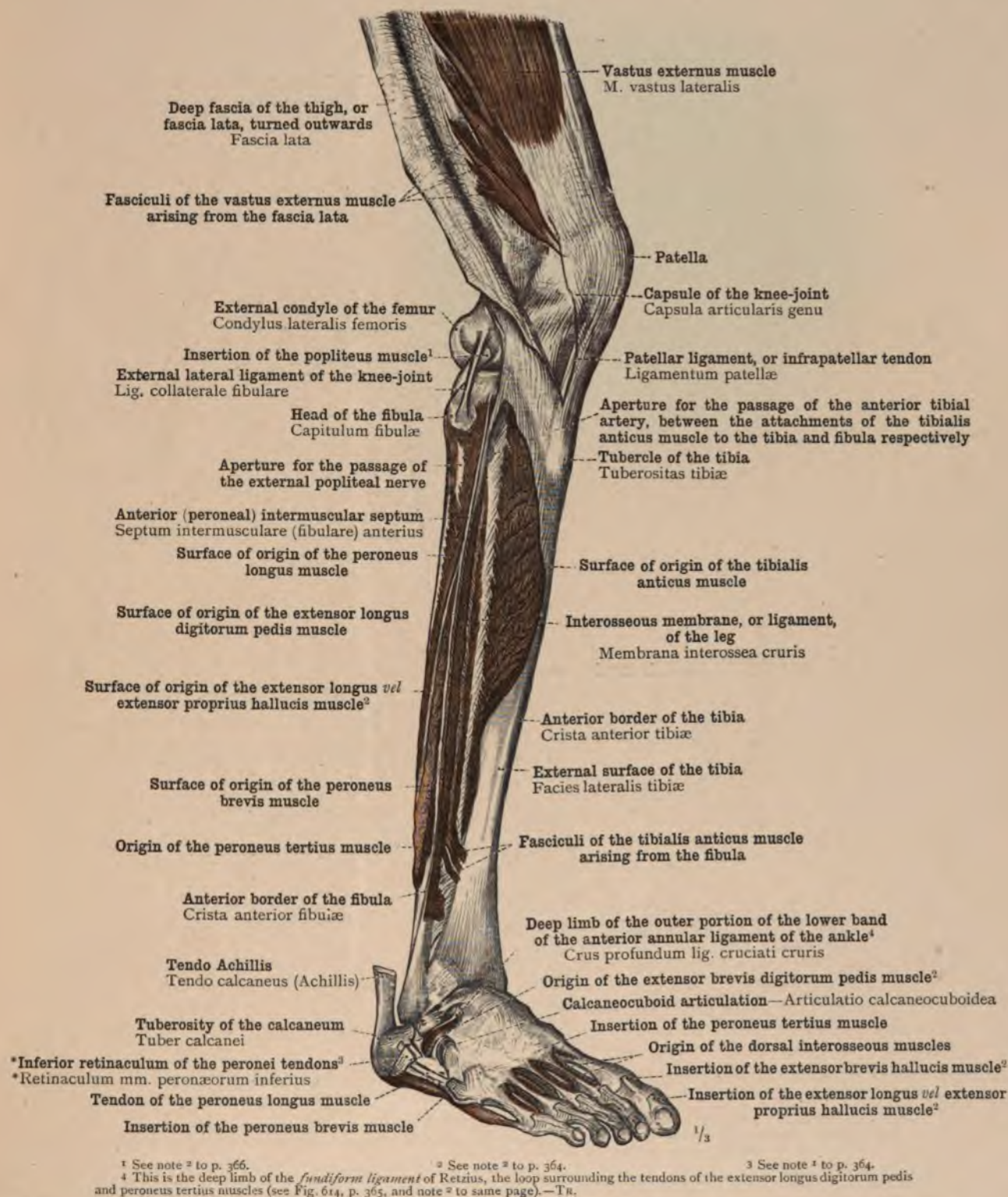


FIG. 616.—ORIGIN OF MUSCLES FROM THE FRONT AND OUTER SIDE OF THE LEG AND FROM THE DORSUM OF THE FOOT. FASCICULI OF THE VASTUS EXTERNUS MUSCLE ARISING FROM THE FASCIA LATA.

Musculi cruris—Muscles of the leg.

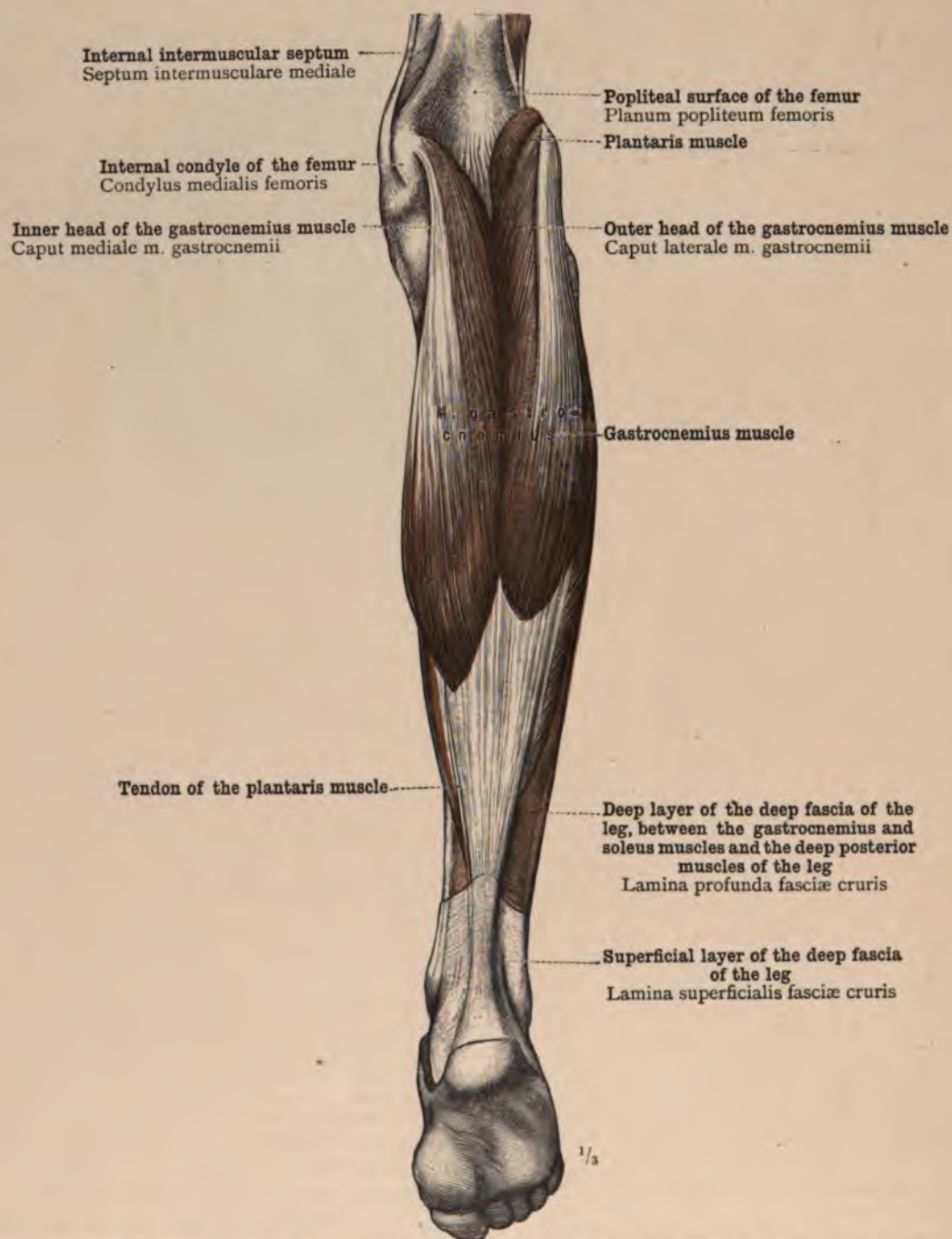


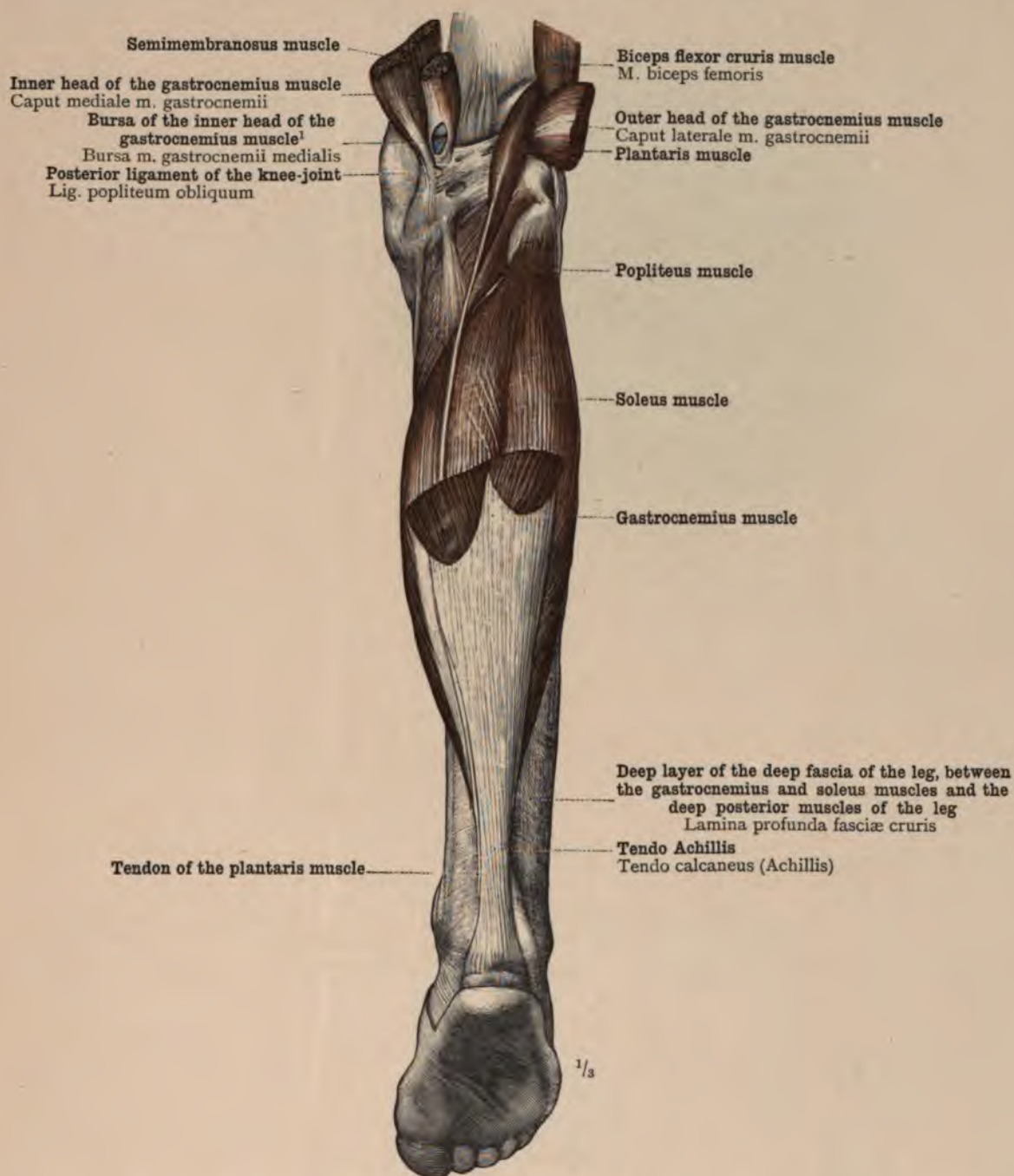
FIG. 617.—SUPERFICIAL GROUP¹ OF THE POSTERIOR MUSCLES OF THE RIGHT LEG, FIRST PORTION: GASTROCNEMIUS MUSCLE, CONSTITUTING THE TWO SUPERFICIAL HEADS OF THE *TRICEPS SURÆ MUSCLE.²

Of the deep fascia of the leg, the lower portion of the superficial layer, which binds down the tendo Achillis, and the deep layer, which passes from side to side between the superficial and the deep posterior muscles of the leg, have been retained. The plantaris muscle and its tendon are partially visible.

¹ The author divides the posterior muscles of the leg into three groups or layers, the first, most superficial, consisting of the gastrocnemius muscle; the second consisting of the plantaris and soleus muscles; and the third, deepest, consisting of the popliteus, flexor longus hallucis, flexor longus digitorum pedis (or flexor perforans), and tibialis posterior muscles. This arrangement appears a very artificial one, and I have therefore adhered to the arrangement usually adopted by English anatomists, according to which the muscles are grouped in two layers only: a superficial, consisting of the gastrocnemius, soleus, and plantaris muscles; and a deep, consisting of the muscles already enumerated as making up the author's third layer.—Tr.

² *Triceps Suræ Muscle*.—This name is given by the author to the gastrocnemius and soleus, considered as a single three-headed muscle. The name is not usually employed in England.—Tr.

Musculi cruris—Muscles of the leg.



¹ See note ² to p. 362.

FIG. 618.—SUPERFICIAL GROUP OF THE POSTERIOR MUSCLES OF THE RIGHT LEG, SECOND PORTION (see note ¹ to p. 368), AS SEEN AFTER THE REMOVAL OF THE TWO SUPERFICIAL HEADS OF THE *TRICEPS SURÆ MUSCLE (*i.e.*, THE UPPER PART OF THE GASTROCNEMIUS MUSCLE): SOLEUS MUSCLE; PLANTARIS MUSCLE. TENDO ACHILLIS, THE COMMON TENDON OF THE THREE HEADS OF THE *TRICEPS SURÆ MUSCLE (*i.e.*, THE TENDON FORMED BY THE UNION OF THE FLAT TENDONS OF THE GASTROCNEMIUS AND SOLEUS MUSCLES). OF THE DEEP GROUP OF POSTERIOR MUSCLES OF THE LEG, THE POPLITEUS MUSCLE IS PARTLY VISIBLE. DEEP LAYER OF THE DEEP FASCIA OF THE LEG, WHICH PASSES FROM SIDE TO SIDE BETWEEN THE SUPERFICIAL AND THE DEEP POSTERIOR MUSCLES OF THE LEG.

Musculi cruris—Muscles of the leg

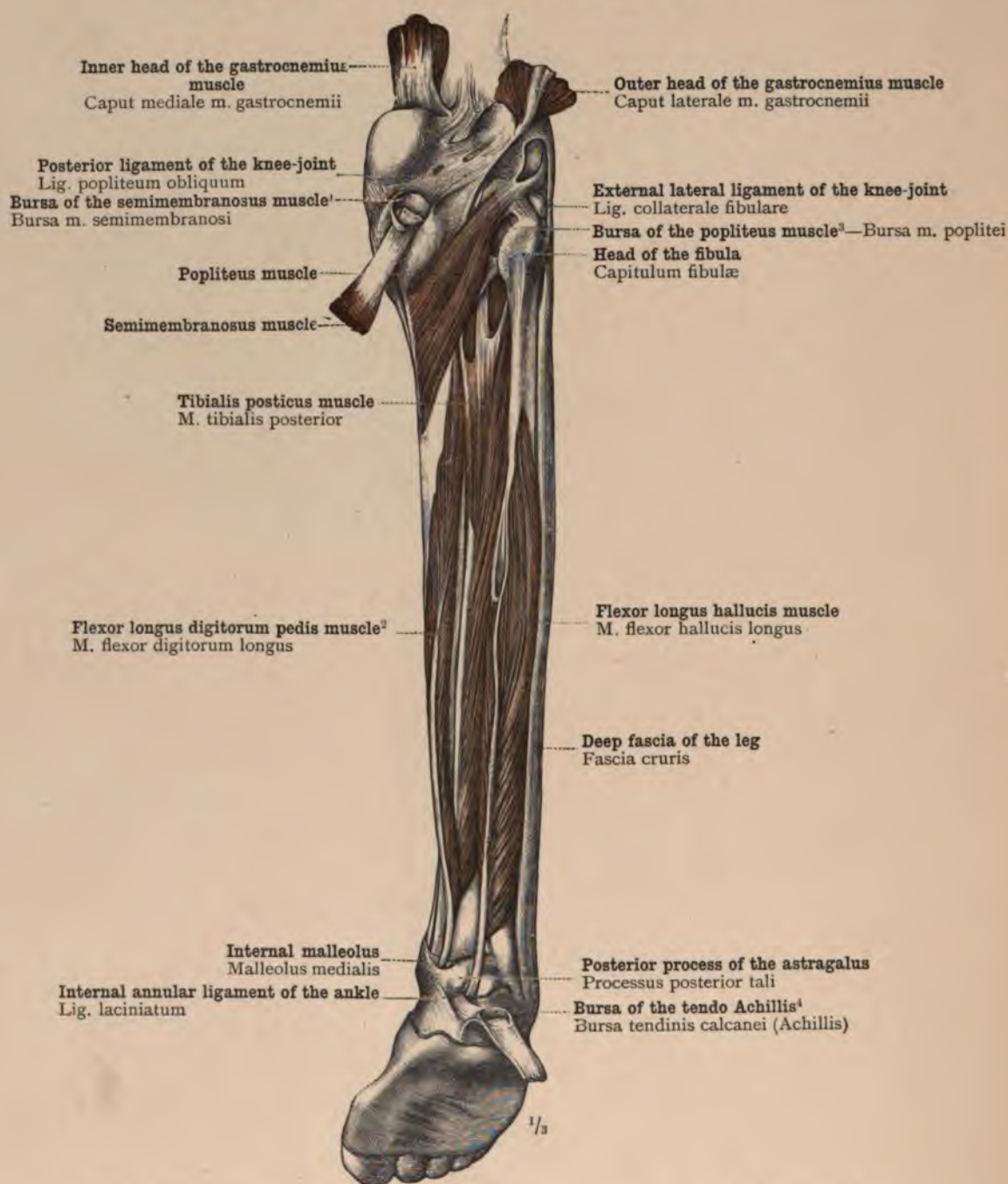
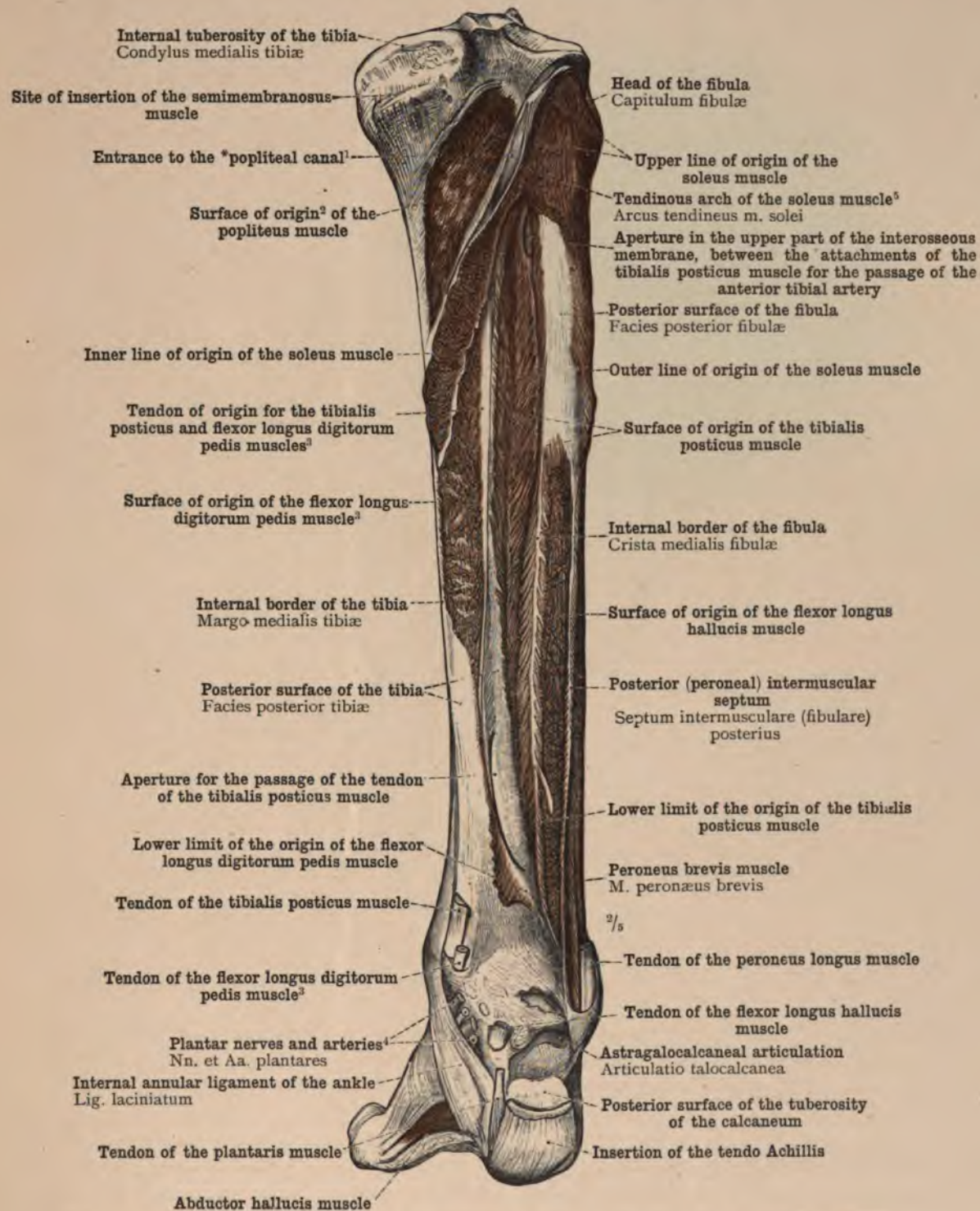
¹ See note 3 to p. 362.² Or *flexor perforans* muscle.³ See note 2 to p. 363.⁴ The bursa of the tendo Achillis is situated between that tendon and the upper part of the tuberosity of the calcaneum.—Tr.

FIG. 619.—DEEP GROUP OF THE POSTERIOR MUSCLES OF THE RIGHT LEG (see note ¹ to p. 368), AS SEEN AFTER THE REMOVAL OF ALL THREE HEADS OF THE *TRICEPS SURÆ MUSCLE (THAT IS, OF THE GASTROCNEMIUS AND SOLEUS MUSCLE), THE PLANTARIS MUSCLE, AND THE DEEP LAYER OF THE DEEP FASCIA OF THE LEG, WHICH COVERS THE DEEP MUSCLES BENEATH THE GASTROCNEMIUS AND SOLEUS MUSCLES: FLEXOR LONGUS HALLUCIS MUSCLE; TIBIALIS POSTICUS MUSCLE; FLEXOR LONGUS DIGITORUM PEDIS MUSCLE (see note ² above); POPLITEUS MUSCLE. BURSA OF THE TENDO ACHILLIS, BURSA OF THE POPLITEUS MUSCLE, BURSA OF THE SEMIMEMBRANOSUS MUSCLE.

In the region of the peronei muscles the deep fascia of the leg, with the posterior (peroneal) inter-muscular septum, has been retained.

Musculi cruris—Muscles of the leg.



¹ See note 3 to p. 363.
² See note 2 to p. 366.
³ Or *flexor perforans* muscle.
⁴ It is unusual for the posterior tibial nerve and artery to divide into the external and internal plantar until they have passed beneath the internal annular ligament of the ankle.—Tr.
⁵ See note 7 to p. 363.

FIG. 620.—SURFACES OF ORIGIN OF THE POSTERIOR MUSCLES OF THE LEG.

Musculi cruris—Muscles of the leg.

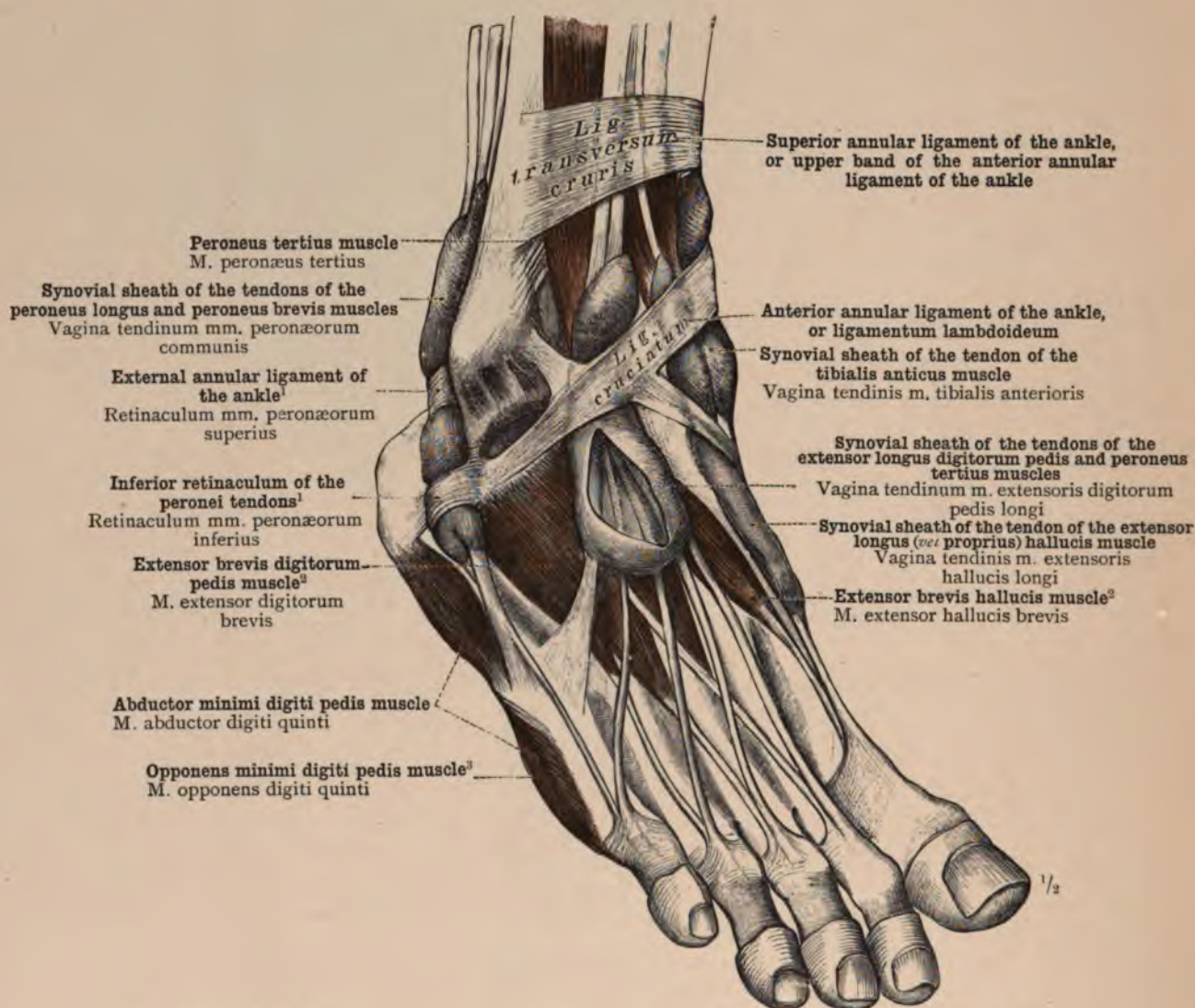
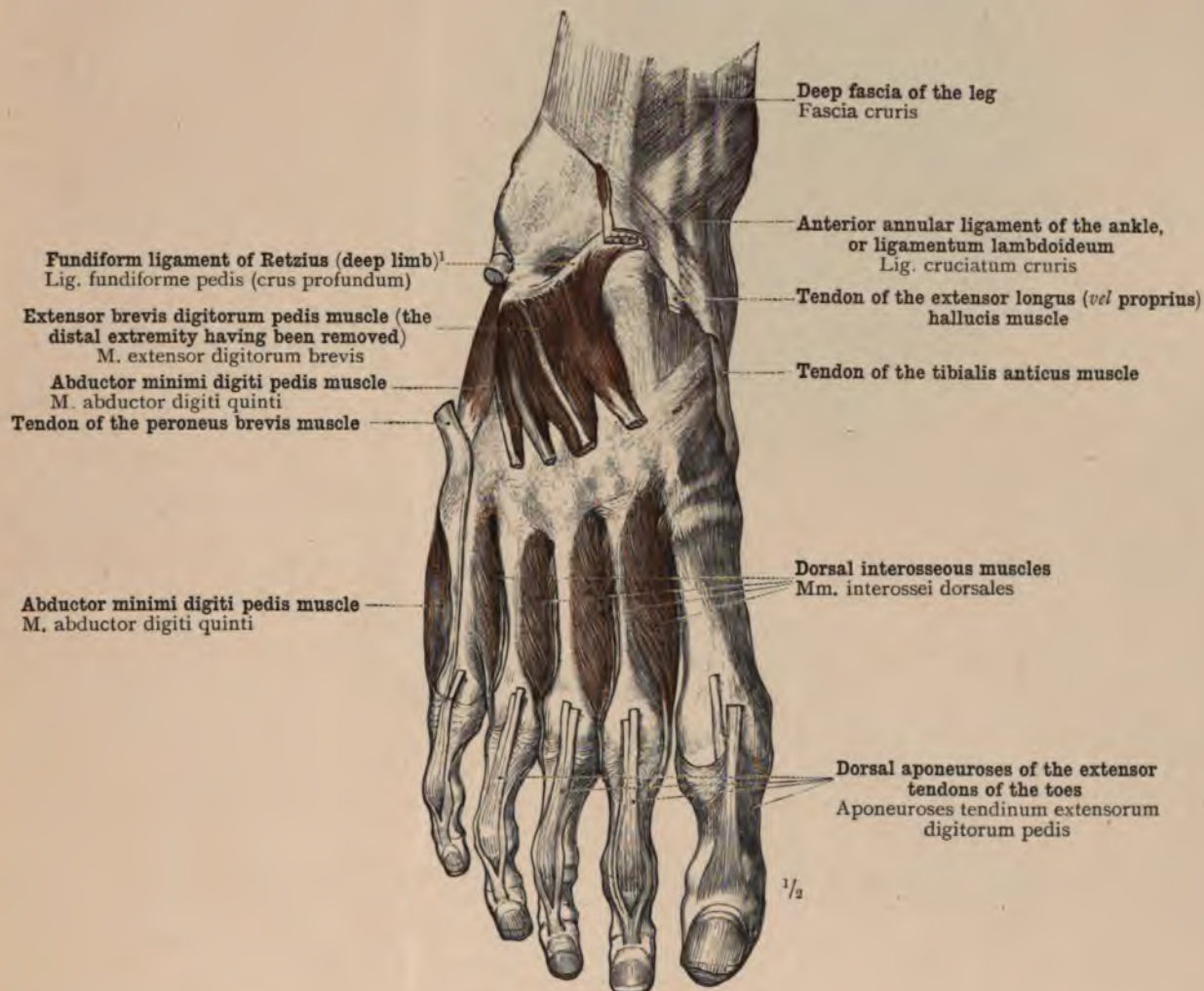
¹ See note ¹ to p. 364.² See note ² to p. 364.³ See note ³ to p. 364.

FIG. 621.—MUSCLES OF THE DORSUM AND OF THE OUTER BORDER OF THE FOOT: EXTENSOR BREVIS DIGITORUM MUSCLE (see note ² to p. 364); EXTENSOR BREVIS HALLUCIS MUSCLE (see note ² to p. 364); ABDUCTOR MINIMI DIGITI PEDIS MUSCLE; OPPONENS MINIMI DIGITI PEDIS MUSCLE (see note ³ to p. 364). SYNOVIAL SHEATHS OF THE TENDONS ON THE DORSUM OF THE FOOT AND IN THE EXTERNAL RETROMALLEOLAR REGION, AS SEEN AFTER INJECTION WITH STRONG ALCOHOL. RETINACULA TENDINUM MUSCULORUM PERINÆORUM, SUPERIUS ET INFERIUS (EXTERNAL ANNULAR LIGAMENT OF THE ANKLE AND INFERIOR RETINACULUM OF THE PERONEI TENDONS—see note ¹ to p. 364). RIGHT FOOT.

Musculi pedis—Muscles of the foot.



¹ See note ² to p. 365 and note 4 to p. 367.

FIG. 622.—MUSCLES OF THE DORSUM OF THE FOOT, AFTER REMOVAL OF THE TENDONS OF THE LONG AND SHORT EXTENSORS OF THE TOES AND THE SUPERFICIAL LIMB OF THE FUNDIFORM LIGAMENT OF RETZIUS. PARTIAL ORIGIN OF THE EXTENSOR BREVIS DIGITORUM PEDIS MUSCLE FROM THE DEEP LIMB OF THE FUNDIFORM LIGAMENT OF RETZIUS. DORSAL INTEROSSEOUS MUSCLES. APONEUROTIC EXPANSIONS OF THE EXTENSOR TENDONS ON THE DORSAL SURFACE OF THE TOES. RIGHT FOOT.

Musculi pedis—Muscles of the foot.

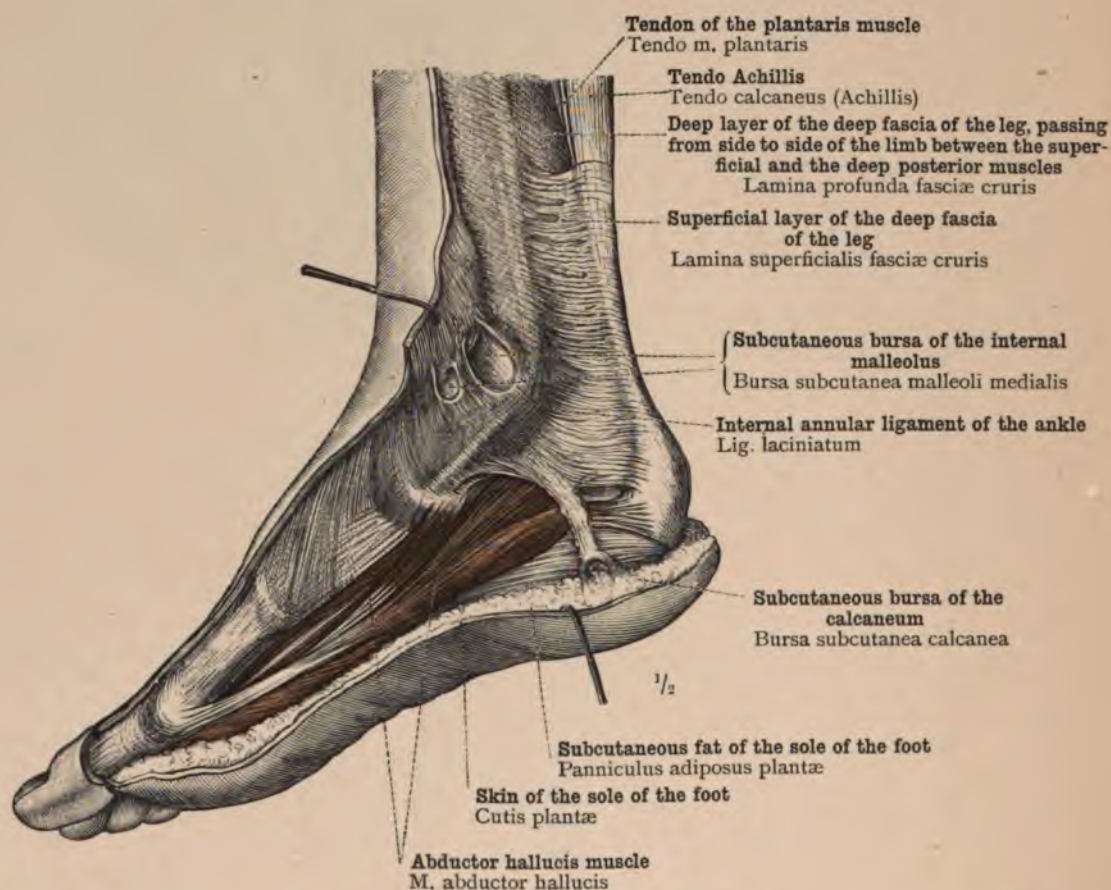


FIG. 623.—INTERNAL MALLEOLAR AND INTERNAL RETROMALLEOLAR REGIONS OF THE RIGHT FOOT, WITH THE SUPERFICIAL LAYER OF THE DEEP FASCIA OF THE LEG, THE INTERNAL ANNULAR LIGAMENT OF THE ANKLE, AND THE SUBCUTANEOUS BURSA OF THE INTERNAL MALLEOLUS. THE INNER BORDER OF THE FOOT WITH THE ABDUCTOR HALLUCIS MUSCLE. SUBCUTANEOUS BURSA OF THE CALCANEUM. SEEN FROM THE INNER SIDE.

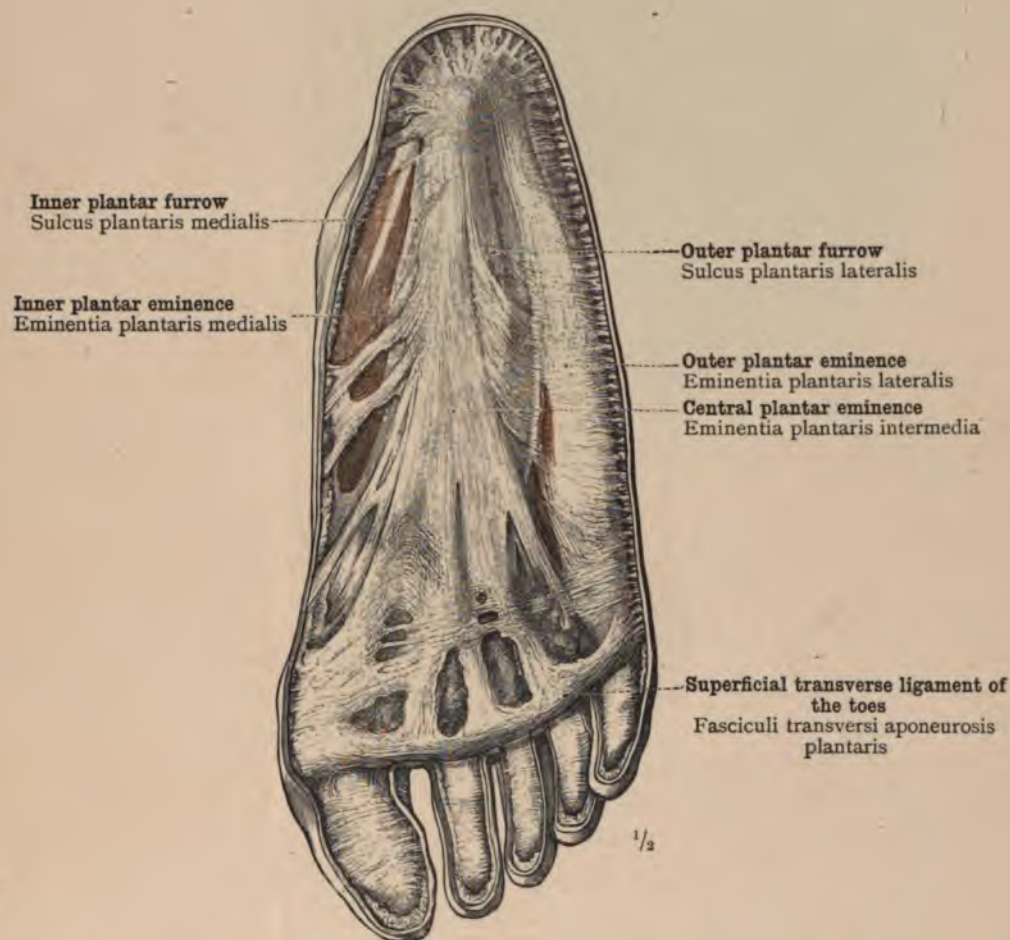
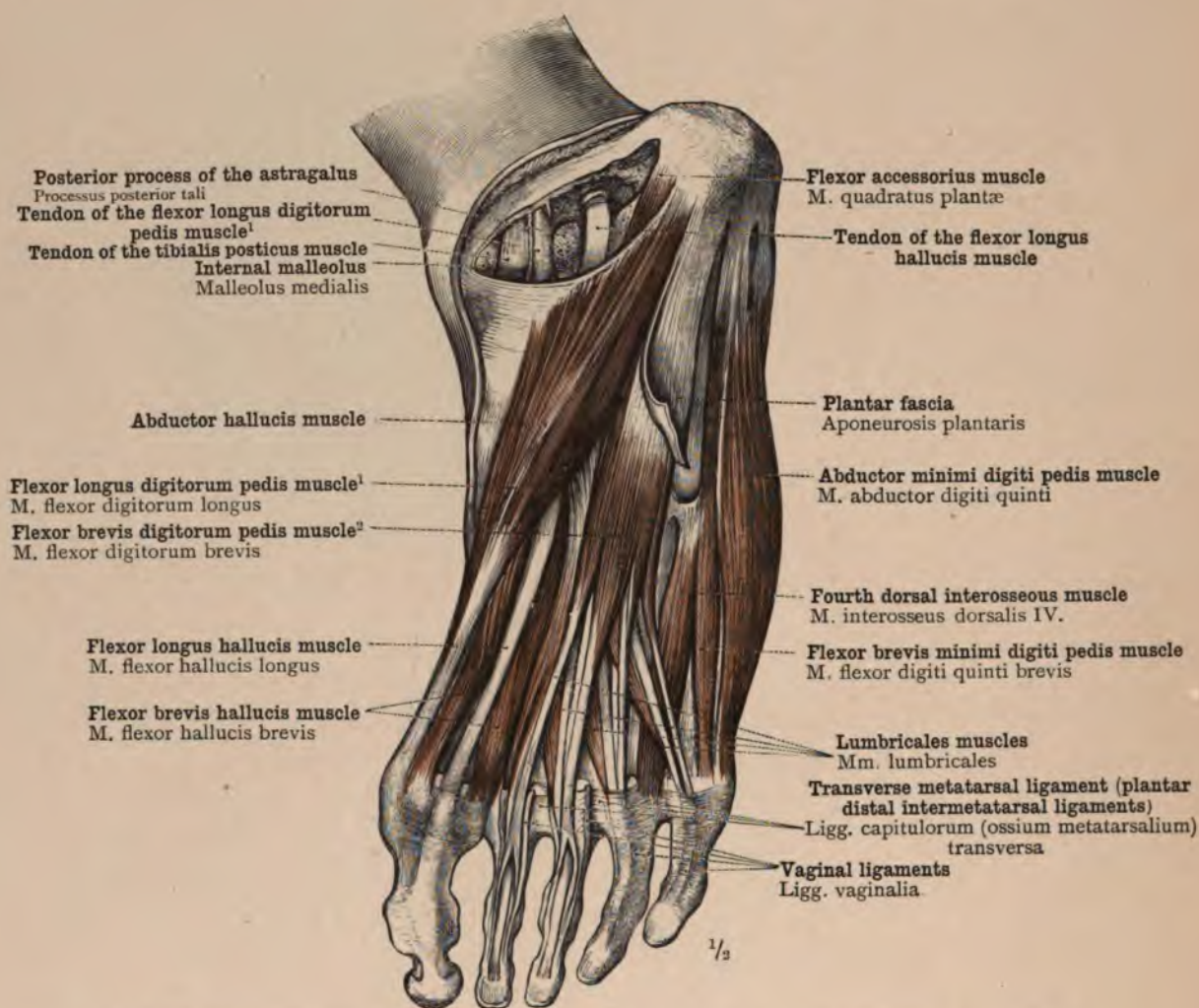


FIG. 624.—APONEUROSIS PLANTARIS, DEEP FASCIA OF THE SOLE, OR PLANTAR FASCIA, WITH THE SUPERFICIAL TRANSVERSE LIGAMENT OF THE TOES; THE FIBRES PASSING FROM THE PLANTAR FASCIA TO THE SKIN, AND THE PROCESSES TO THE DIGITAL SHEATHS; THE PLANTAR EMINENCES AND FURROWS (EMINENTIÆ PLANTARES ET SULCÆ PLANTARES) DEPENDENT ON THE DISPOSITION OF THE MUSCLES AND THE INTERMUSCULAR SEPTA. RIGHT FOOT.

Musculi pedis—Muscles of the foot.



¹ Or *flexor perforans* muscle.

² Or *flexor perforatus* muscle.

³ Like the author, English anatomists group the muscles of the sole in four layers, but the two classifications are not entirely identical. That of the author is given in the description at the foot of Figs. 625 to 628. According to English anatomists, the *first* or superficial layer consists of the flexor longus digitorum (or flexor perforans) and flexor longus hallucis muscles, together with the flexor accessorius and lumbricales muscles; the *third* layer consists of the flexor brevis hallucis, adductor obliquus hallucis, adductor transversus hallucis, and flexor brevis minimi digiti muscles; and the *fourth* layer consists of the dorsal and plantar interosseous muscles, together with the tendons of the tibialis posticus and peroneus longus muscles.—Tr.

FIG. 625.—FIRST OR SUPERFICIAL LAYER OF THE MUSCLES OF THE SOLE (see note ³ above), UPON WHICH THE THREE PLANTAR EMINENCES DEPEND, AS SEEN AFTER REMOVAL OF THE PLANTAR FASCIA. OF THIS LATTER, THE MIDDLE PORTION ONLY AT THE BACK OF THE SOLE HAS BEEN RETAINED, IN SO FAR AS IT GIVES ORIGIN TO THE MUSCLES. ABDUCTOR HALLUCIS MUSCLE; FLEXOR BREVIS HALLUCIS MUSCLE; FLEXOR BREVIS DIGITORUM PEDIS MUSCLE (see note ² above); FLEXOR BREVIS MINIMI DIGITI PEDIS MUSCLE; ABDUCTOR MINIMI DIGITI PEDIS MUSCLE. RIGHT FOOT, EXTENDED. PLANTAR ASPECT.

The sheath of the flexor tendons of the toes (vaginal ligament) has been opened longitudinally in the second and third toes, but in the others has been left intact.

Musculi pedis—Muscles of the foot.

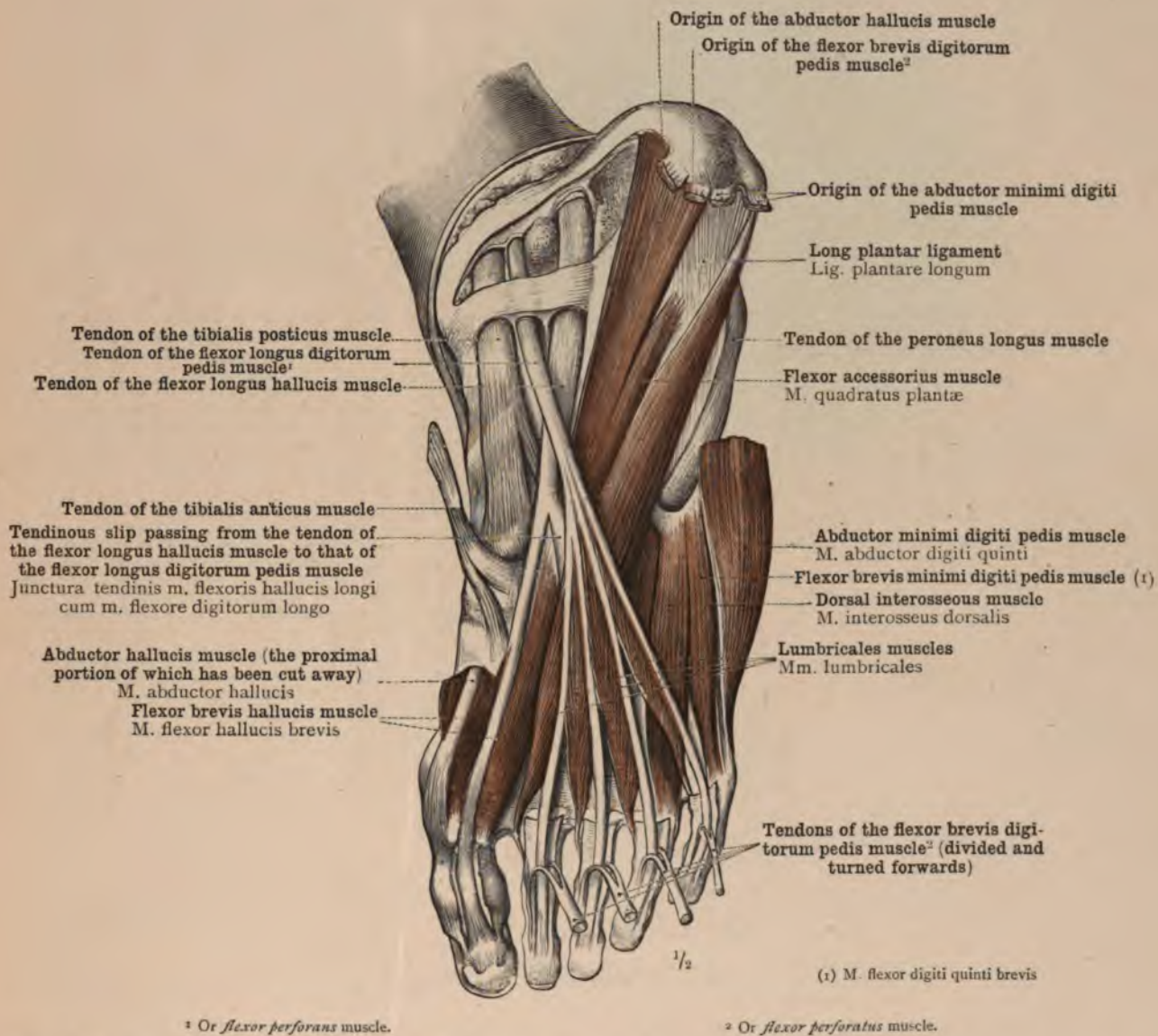


FIG. 626.—SECOND LAYER OF THE MUSCLES OF THE SOLE WITH THE TENDONS OF THE DEEP POSTERIOR MUSCLES OF THE LEG, AS SEEN AFTER THE PARTIAL REMOVAL OF THE MUSCLES OF THE FIRST LAYER: TENDON OF THE FLEXOR LONGUS DIGITORUM PEDIS MUSCLE (see note ¹ above) AND ITS DIVISION INTO FOUR TENDONS PASSING TO THE FOUR SMALLER TOES; FLEXOR ACCESSORIUS (QUADRATUS PLANTÆ) AND LUMBRICALES MUSCLES; TENDON OF THE FLEXOR LONGUS HALLUCIS MUSCLE AND ITS SLIP TO THE TENDON OF THE FLEXOR LONGUS DIGITORUM PEDIS MUSCLE; INSERTION OF THE TIBIALIS ANTICUS AND TIBIALIS POSTICUS MUSCLES; FLEXOR BREVIS HALLUCIS MUSCLE; FLEXOR BREVIS MINIMI DIGITI PEDIS MUSCLE. RIGHT FOOT.



¹ Or *flexor perforans* muscle.

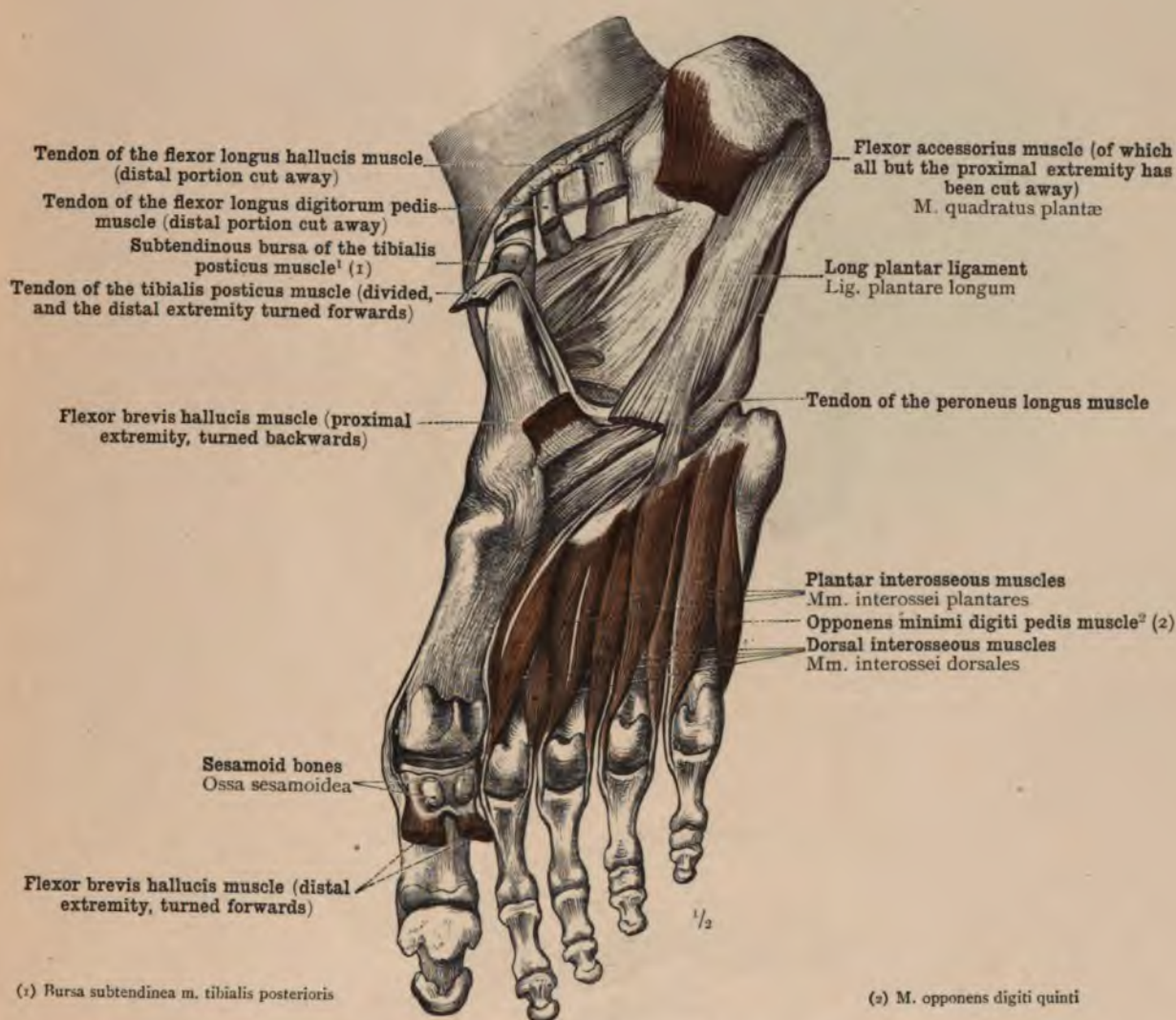
² The subtendinous bursa of the tibialis anticus muscle is situate beneath the tendon close to its insertion.—Tr.

³ See note 3 to p. 364.

FIG. 627.—THIRD LAYER OF THE MUSCLES OF THE SOLE: M. ADDUCTOR HALLUCIS, CAPUT OBLIQUUM ET CAPUT TRANSVERSUM, OR, ACCORDING TO ENGLISH ANATOMISTS, ADDUCTOR OBLIQUUS HALLUCIS AND ADDUCTOR TRANSVERSUS HALLUCIS MUSCLES; FLEXOR BREVIS HALLUCIS MUSCLE; FLEXOR BREVIS MINIMI DIGITI PEDIS AND OPPONENS MINIMI DIGITI PEDIS MUSCLES (see note ³ to p. 364). SYNOVIAL SHEATHS OF THE TENDONS OF THE TIBIALIS POSTICUS, FLEXOR LONGUS DIGITORUM PEDIS, FLEXOR LONGUS HALLUCIS, AND PERONEUS LONGUS MUSCLES. SUBTENDINOUS BURSA OF THE TIBIALIS ANTICUS MUSCLE. RIGHT FOOT.

The vaginal ligaments of the toes have been opened, and their connexion with the transverse metatarsal ligament (plantar distal intermetatarsal ligaments) is displayed.

Musculi pedis—Muscles of the foot.



¹ The subtendinous bursa of the tibialis posticus muscle is situated beneath the tendon close to its insertion.—Tr.

² See note ¹ to p. 364.

FIG. 628.—FOURTH OR DEEPEST LAYER OF THE MUSCLES OF THE SOLE, AS SEEN AFTER THE REMOVAL OF THE FLEXOR BREVIS HALLUCIS, ADDUCTOR OBLIQUUS HALLUCIS, ADDUCTOR TRANSVERSUS HALLUCIS, AND FLEXOR BREVIS MINIMI DIGITI PEDIS MUSCLES: PLANTAR AND DORSAL INTEROSSEOUS MUSCLES. RELATION OF THE INSERTION OF THE TWO BELLIES OF THE FLEXOR BREVIS HALLUCIS MUSCLE TO THE SESAMOID BONES ON THE PLANTAR SURFACE OF THE METATARSOPHALANGEAL ARTICULATION OF THE GREAT TOE. SUBTENDINOUS BURSA OF THE TIBIALIS POSTICUS MUSCLES. RIGHT FOOT.

In order to demonstrate the course of the tendon of the peroneus longus muscle through the sole of the foot and the insertion of this tendon into the outer side of the tuberosity of the first metatarsal bone, the anterior portions of the long plantar ligament have been removed.

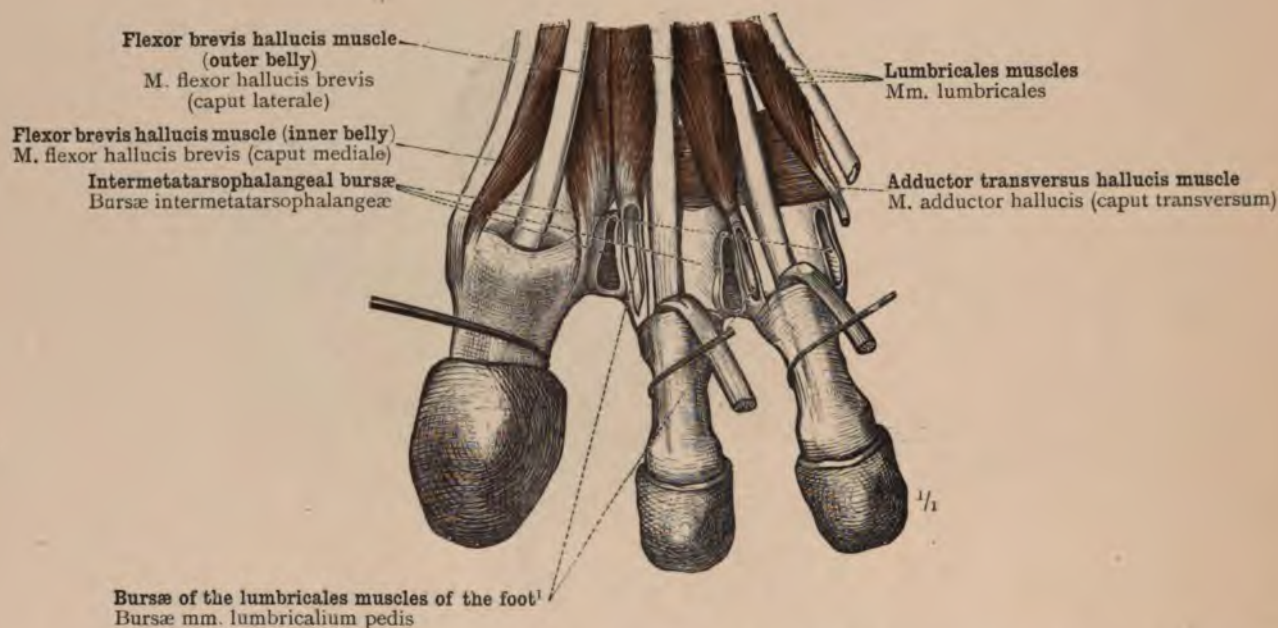
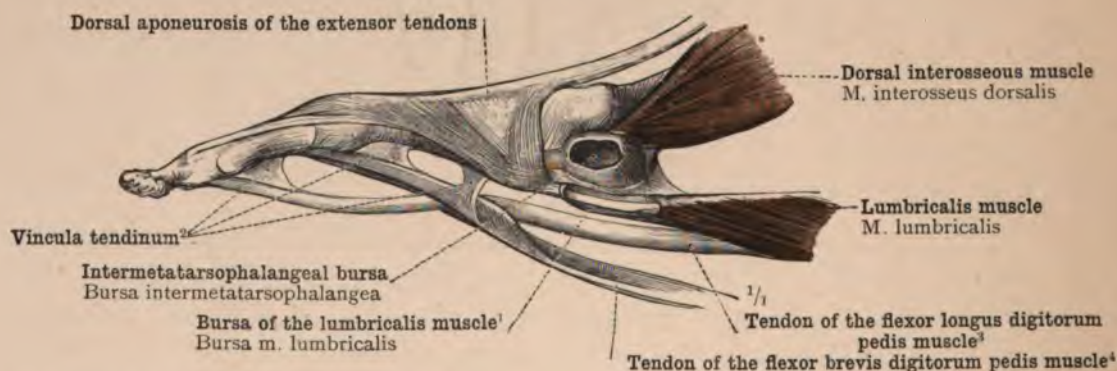


FIG. 629.—BURSÆ OF THE LUMBRICALES MUSCLES OF THE FOOT AND INTERMETATARSOPHALANGEAL BURSÆ, AS SEEN FROM THE PLANTAR SURFACE. THE BURSÆ HAVE BEEN OPENED. FIRST THREE TOES OF THE RIGHT FOOT, WIDELY SEPARATED.



¹ The bursa of the lumbricales muscles of the foot are situate between the tendons of the lumbricales muscles and the bases of the proximal phalanges.—TR.

² The arrangement of the flexor tendons of the toes, with their vincula, closely resembles that of the flexor tendons of the fingers. See Fig. 580 on p. 331, and note ¹ on that page.—TR.

³ Or flexor perforans muscle.

⁴ Or flexor perforatus muscle.

FIG. 630.—DISTAL EXTREMITIES OF THE EXTENSOR AND FLEXOR TENDONS OF THE SECOND TOE OF THE RIGHT FOOT, SEEN FROM THE INNER SIDE. DORSAL APONEUROSIS OF THE EXTENSOR TENDONS. BURSA OF THE LUMBRICALIS MUSCLE OF THE FOOT AND INTERMETATARSOPHALANGEAL BURSA. VINCULA TENDINUM.

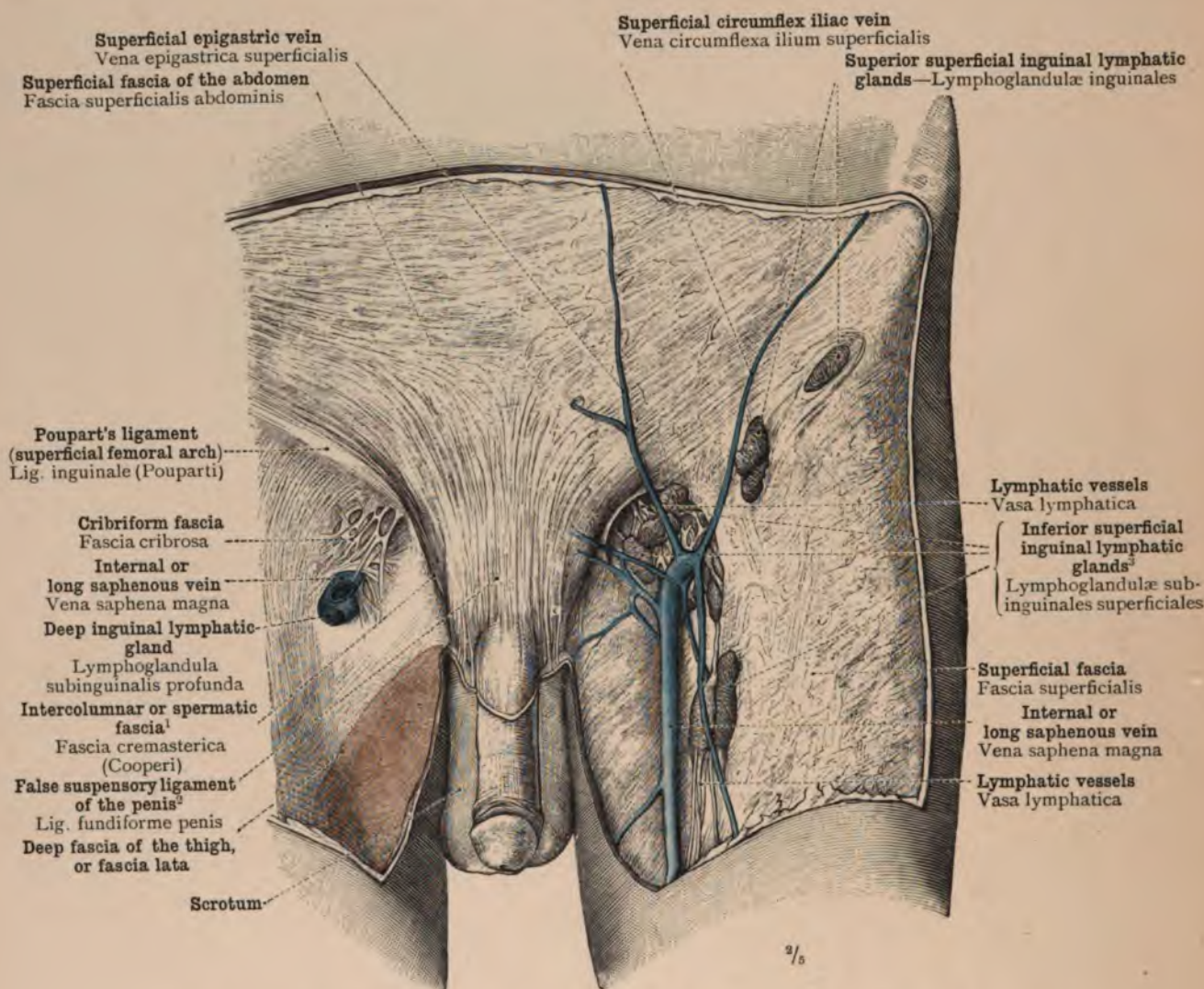
Musculi pedis—Muscles of the foot.

SUPPLEMENT TO THE MYOLOGY

CANALIS INGUINALIS,
THE INGUINAL CANAL,

AND

CANALIS FEMORALIS,
THE FEMORAL OR CRURAL CANAL



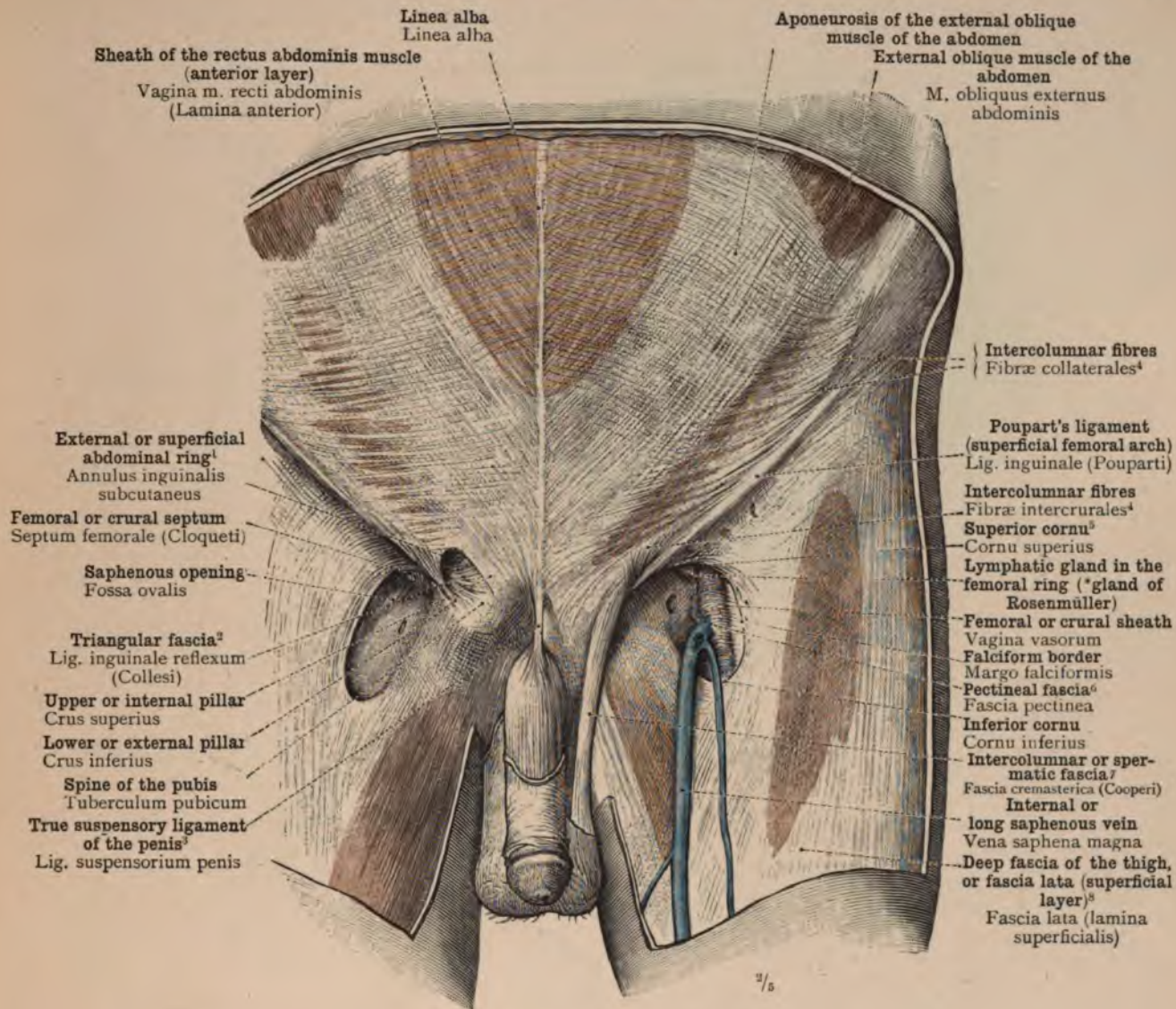
¹ *Fascia Cremasterica (Cooperi)*.—This is not the cremasteric fascia of English anatomists, nor is it the fascia propria of Astley Cooper, but the intercolumnar or spermatic fascia. See note ² to p. 501 in Part IV.—Tr.

² The suspensory ligament of the penis consists of two parts: a superficial, the false suspensory ligament; and a deep, the true suspensory ligament. The former, called by the author *ligamentum fundiforme penis*, when artificially separated from the fascia of the abdomen and the dorsum of the penis (of which it forms a part), is a flattened piece of connective tissue with edges directed laterally and surfaces directed forwards and backwards, respectively. The latter, called by the author *ligamentum suspensorium penis*, when dissected out, has an anterior free edge, a postero-superior edge attached to the front of the pubic symphysis, and a postero-inferior edge attached to the dorsum of the penis, whilst its surfaces look to right and to left (see Fig. 632). The false suspensory ligament contains many yellow elastic fibres; the true consists of white fibres only.—Tr.

³ Often called the femoral lymphatic glands.

FIG. 631.—SUPERFICIAL FASCIA OF THE ANTERIOR WALL OF THE ABDOMEN, WITH THE FALSE SUSPENSORY LIGAMENT OF THE PENIS (LIGAMENTUM FUNDIFORME PENIS) AND THE CREMASTERIC FASCIA (FASCIA CREMASTERICA COOPERI) COVERING THE SPERMATIC CORD. IN THE PORTION OF THE LEFT THIGH FROM WHICH THE SKIN HAS BEEN REMOVED WE SEE THE SUPERFICIAL FASCIA WITH THE SUPERFICIAL INGUINAL AND FEMORAL LYMPHATIC GLANDS AND THE SUBCUTANEOUS VEINS. IN THE RIGHT THIGH THE SUPERFICIAL FASCIA, THE SUPERFICIAL LYMPHATIC GLANDS, AND THE SUBCUTANEOUS VEINS, HAVE BEEN REMOVED, AND THE FASCIA LATA AND THE CRIBRIFORM FASCIA ARE LAID BARE.

Subcutaneous Structures of the Hypogastric and Inguinal Regions.



¹ Or external inguinal aperture.

² The triangular fascia, or *Ligamentum inguinale reflexum Collesi*, consists of some of the fibres of Gimbernat's ligament and of the outer pillar of the external abdominal ring which pass upwards and inwards beneath the spermatic cord in front of, and incorporated with, the anterior layer of the sheath of the rectus abdominis muscle to reach the middle line, where they interlace with the fibres of the opposite side. The development of this fascia is variable, being inversely proportional with that of the pyramidalis muscle, of the sheath of which it forms a specialized part.—Tr.

³ See note ² to p. 382.

⁴ Intercolumnar Fibres.—The author distinguishes the lower intercolumnar fibres, those which cross the gap between the pillars of the external or superficial abdominal ring, as *fibræ intercrurales*; whilst those intercolumnar fibres which are situated entirely above the ring, he calls *fibræ collaterales*.

⁵ See note ¹ to p. 349.

⁶ Or pubic portion of the fascia lata.

⁷ See note ¹ to p. 382.

⁸ See note ² to p. 349.

FIG. 632.—IN THE HYPOGASTRIC REGION, BY THE REMOVAL OF THE SUPERFICIAL FASCIA, THE APONEUROSIS OF THE EXTERNAL OBLIQUE MUSCLE OF THE ABDOMEN AND THE ANTERIOR LAYER OF THE SHEATH OF THE RECTUS ABDOMINIS MUSCLE HAVE BEEN LAID BARE. IN THE INGUINAL REGION, ON THE RIGHT SIDE OF THE BODY, WE SEE THE EXTERNAL OR SUPERFICIAL ABDOMINAL RING (EXTERNAL INGUINAL APERTURE) WITH ITS TWO PILLARS, UPPER OR INTERNAL, AND LOWER OR EXTERNAL, RESPECTIVELY, WHICH ARE FULLY DISPLAYED BY THE REMOVAL OF THE SPERMATIC CORD; ON THE LEFT SIDE, ON THE OTHER HAND, THE SPERMATIC CORD WITH ITS COVERINGS HAS BEEN LEFT INTACT, AND THE EXTERNAL ABDOMINAL RING IS, CONSEQUENTLY, CLOSED. IN THE SUBINGUINAL REGION, THE CRIBRIFORM FASCIA HAVING BEEN REMOVED, THE SAPHENOUS OPENING (FOSSA OVALIS, FEMORAL APERTURE OF THE FEMORAL OR CRURAL CANAL) IS LAID BARE, WITH ITS FALCIFORM BORDER AND SUPERIOR AND INFERIOR CORNUA, ON THE LEFT SIDE ALSO WITH THE INTERNAL OR LONG SAPHENOUS VEIN AND THE FEMORAL OR CRURAL SHEATH, WHILST ON THE RIGHT SIDE THE FEMORAL ARTERY AND VEIN HAVE BEEN REMOVED.

The relation of the external abdominal ring to the spermatic cord and to the saphenous opening is to be noted.

Annulus inguinalis subcutaneus—External or superficial abdominal ring.
Fossa ovalis—Saphenous opening.

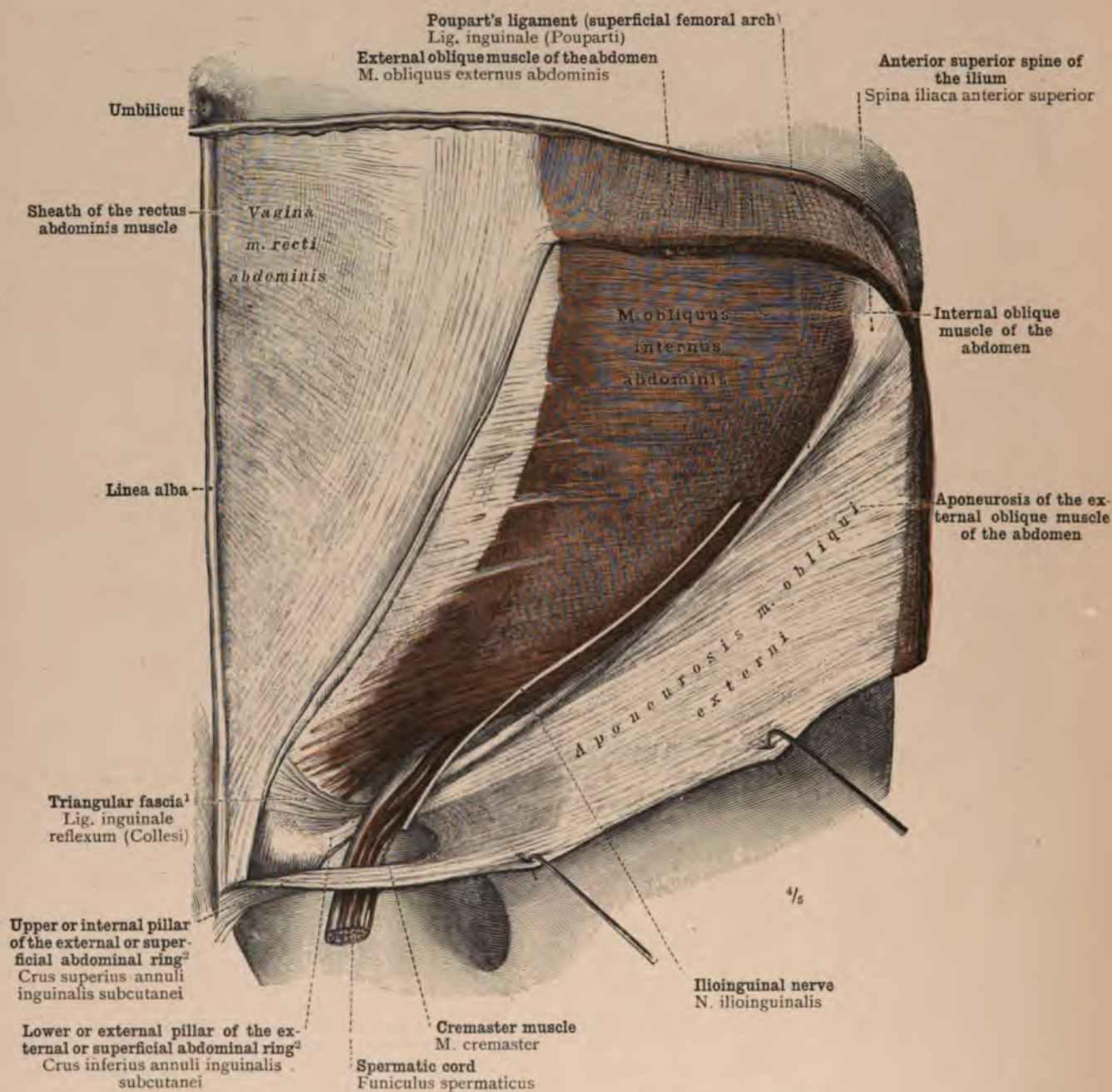
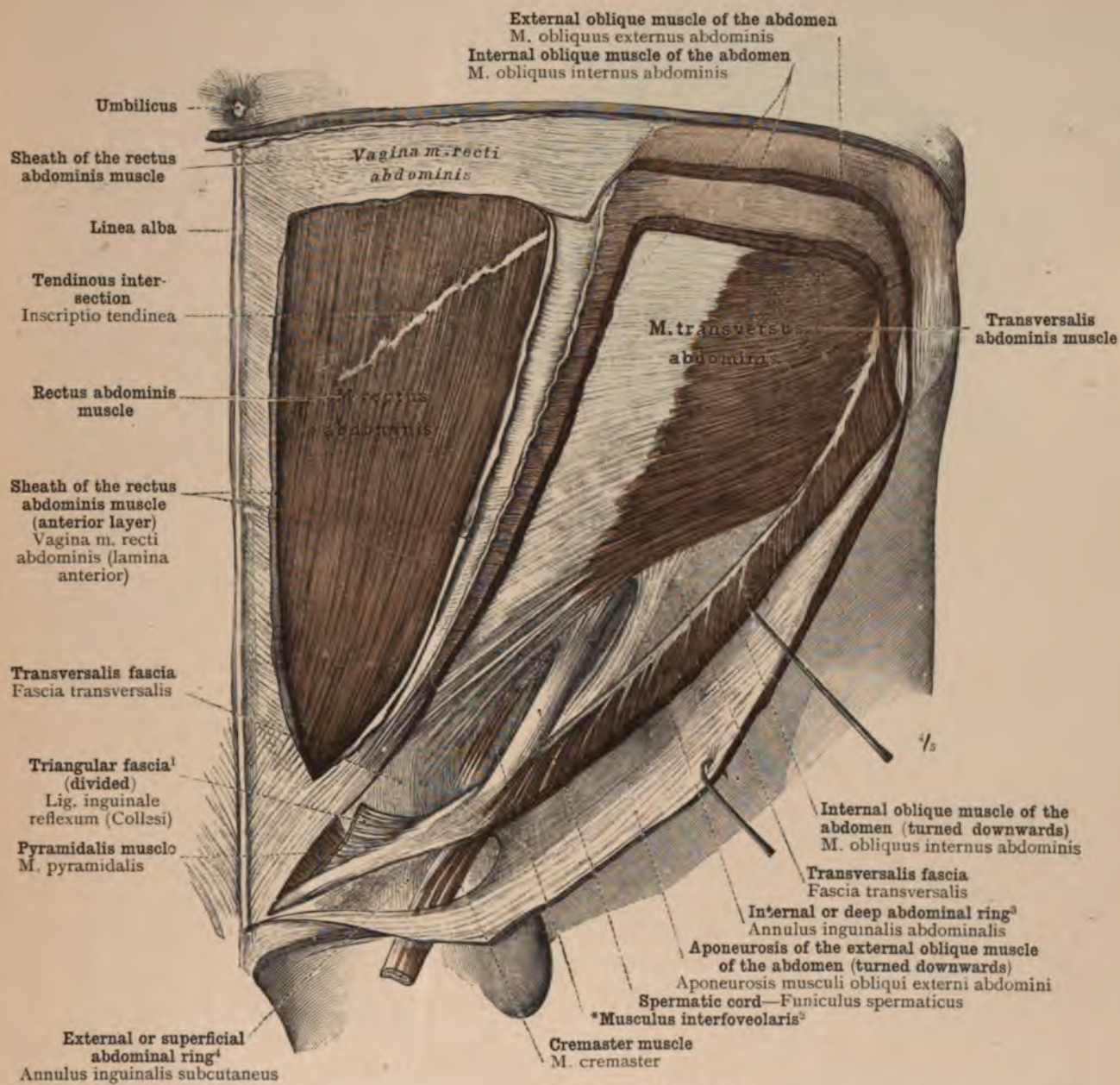
¹ See note 7 to p. 383.² Or external inguinal aperture.

FIG. 633.—INNER PORTION OF THE LEFT INGUINAL CANAL, FROM THE EXTERNAL OR SUPERFICIAL ABDOMINAL RING (EXTERNAL INGUINAL APERTURE) TO THE APERTURE FOR THE SPERMATIC CORD IN THE INTERNAL OBLIQUE MUSCLE OF THE ABDOMEN, DISPLAYED BY THE REMOVAL OF A PORTION OF THE EXTERNAL OBLIQUE MUSCLE OF THE ABDOMEN. CONTINUITY OF THE CREMASTER MUSCLE WITH THE LOWERMOST FASCICULI OF THE INTERNAL OBLIQUE MUSCLE OF THE ABDOMEN. TRIANGULAR FASCIA, OR LIGAMENTUM INGUINALE REFLEXUM (COLLESI).

The lower part of the aponeurosis of the external oblique muscle of the abdomen, together with the upper or internal pillar of the external abdominal ring, has been turned downwards.

Canalis inguinalis—Inguinal canal.



¹ See note 2 to p. 383.

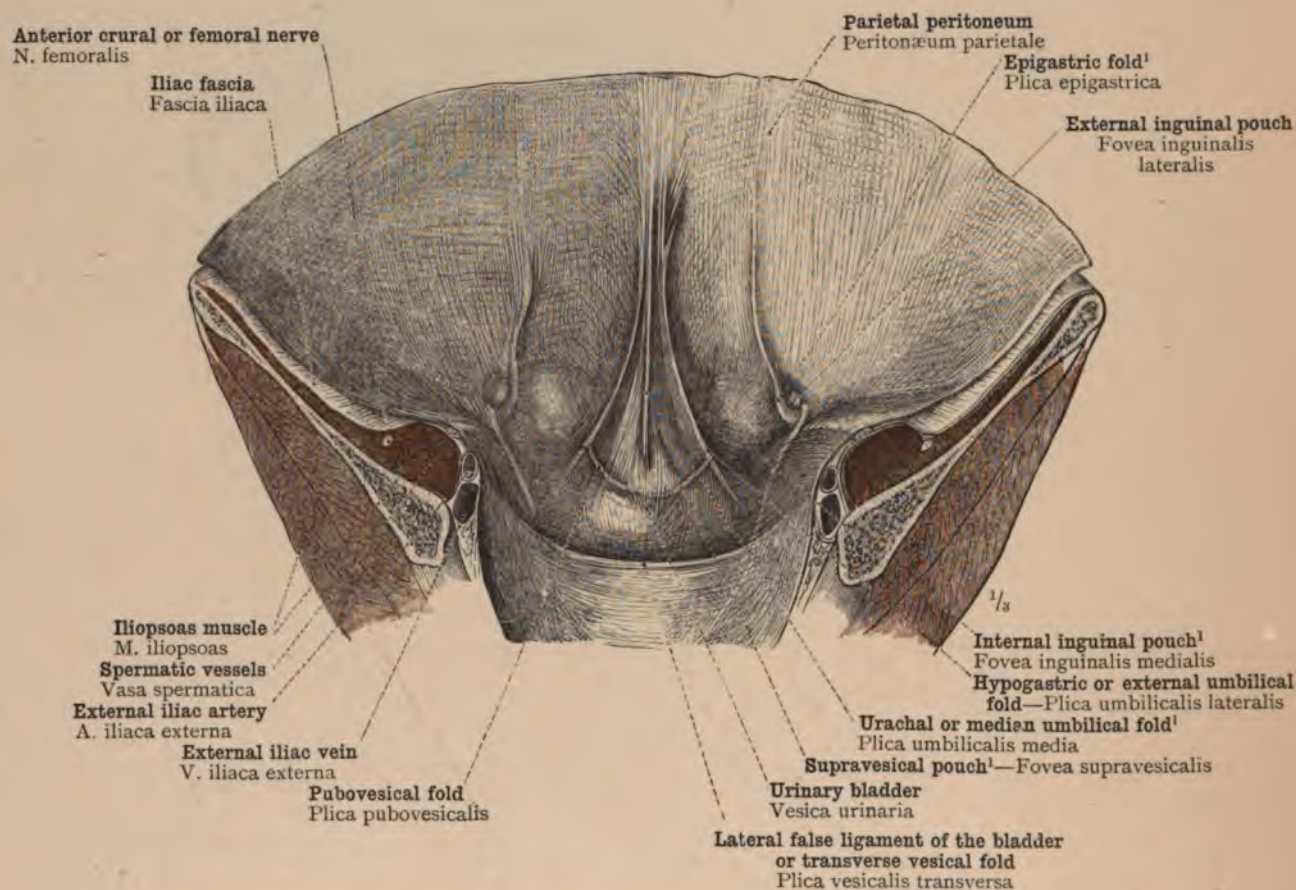
² See note 3 to p. 275.

³ Or internal inguinal aperture.

⁴ Or external inguinal aperture.

FIG. 634.—OUTER PORTION OF THE LEFT INGUINAL CANAL, FROM THE APERTURE FOR THE SPERMATIC CORD IN THE INTERNAL OBLIQUE MUSCLE OF THE ABDOMEN TO THE INTERNAL OR DEEP ABDOMINAL RING (INTERNAL INGUINAL APERTURE), DISPLAYED BY THE REMOVAL OF A PORTION OF THE INTERNAL OBLIQUE MUSCLE OF THE ABDOMEN. MUSCULUS INTERFOVEOLARIS (see note ³ to p. 275), THE FIBRES OF WHICH LIE IN FRONT OF THE LIGAMENTUM INTERFOVEOLARE OR LIGAMENT OF HESSELBACH (see note ¹ to p. 387), WHICH IS ITSELF NOT DEFINED IN THE FIGURE.

Canalis inguinalis—Inguinal canal.



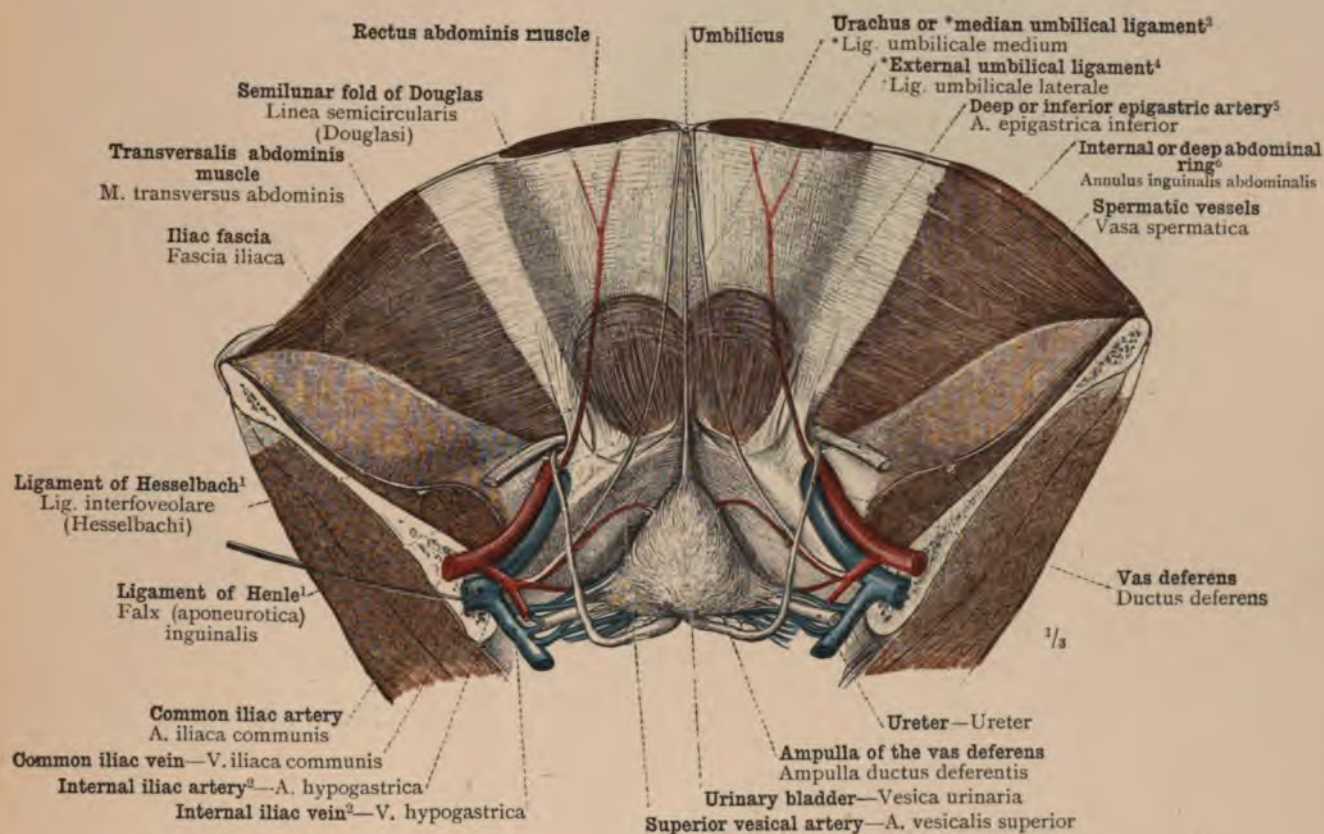
* By some authorities the space between the urachal fold and the hypogastric fold (called here *supravesical pouch*) is termed *internal inguinal pouch*; and the space between the hypogastric fold and the epigastric fold (called here *internal inguinal pouch*) is termed *middle inguinal pouch*. The author's nomenclature is to be preferred. The epigastric fold, on the outer side, and a line drawn on the inner surface of the anterior abdominal wall corresponding to the outer margin of the rectus abdominis muscle, on the inner side, form the sides, while Poupart's ligament forms the base, of a triangular space, usually called the *triangle of Hesselbach*, through which a direct inguinal hernia passes.—T II.

² Also called the *superior false ligament*, or *suspensory ligament*, of the bladder.

FIG. 635.—LOWER PORTION OF THE ANTERIOR WALL OF THE ABDOMEN SEEN FROM BEHIND, SHOWING THE PARIETAL PERITONEUM WITH ITS FOLDS AND POUCHES: PLICA UMBILICALIS LATERALIS, THE HYPOGASTRIC OR EXTERNAL UMBILICAL FOLD; PLICA UMBILICALIS MEDIA, THE URACHAL OR MEDIAN UMBILICAL FOLD (see note ² above); PLICA EPIGASTRICA, THE EPIGASTRIC FOLD. FOVEÆ INGUINALES, LATERALIS ET MEDIA, THE EXTERNAL AND INTERNAL INGUINAL POUCHES; FOVEA SUPRAVESICALIS, THE SUPRAVESICAL POUCH. PLICA VESICALIS TRANSVERSA, THE LATERAL FALSE LIGAMENT OF THE BLADDER OR TRANSVERSE VESICAL FOLD. PLICÆ PUBOVESICALES, THE PUBOVESICAL FOLDS.

(Coronal section through the lower part of the trunk.)

Plicæ umbilicales—The umbilical folds.—Foveæ inguinales—The inguinal pouches.



¹ The conjoined tendon of the internal oblique muscle of the abdomen and the transversalis abdominis muscle is often divided, or can be readily divided by dissection, into two parts. The outer of these is called the *ligament of Hesselbach*, or *ligamentum interfoveolare*, and the inner is known as the *ligament of Henle*, or *falx inguinalis*.—Tr.

² The *internal iliac artery* and vein are in the Continental nomenclature known as *hypogastric artery* and vein respectively.—Tr.

³ The *median umbilical ligament* consists of a fibrous cord, the *urachus*, extending from the apex of the bladder to the umbilicus, and, when covered by peritoneum, constitutes the *urachal or median umbilical fold*. See Fig. 635, p. 386.—Tr.

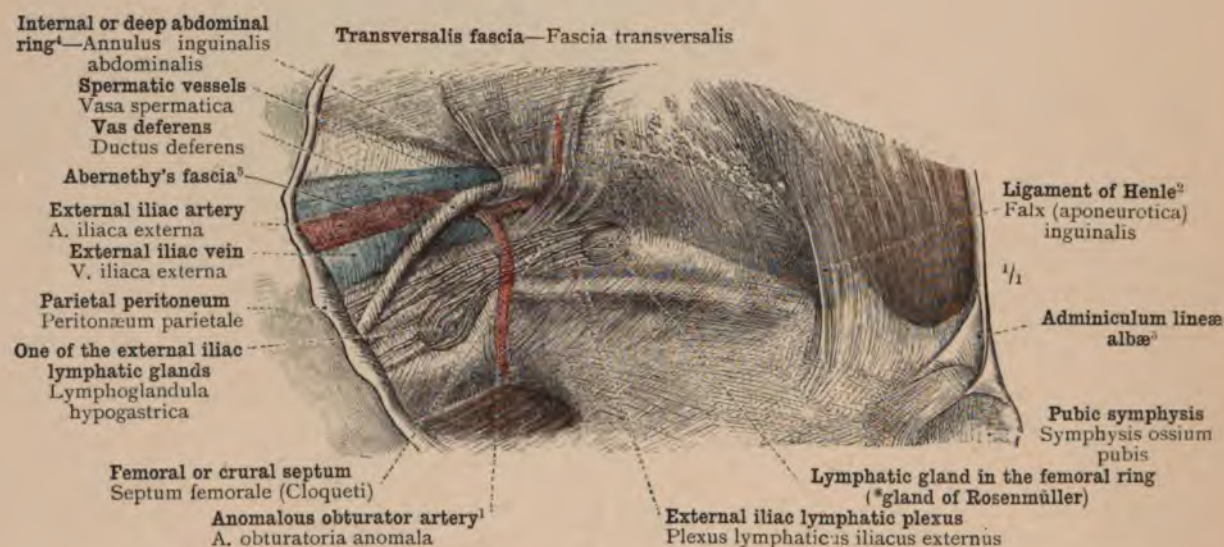
⁴ The *external umbilical ligament* consists of a fibrous cord, the remains of the obliterated hypogastric artery, extending from the superior vesical artery (close to its origin from the internal iliac artery) near the side of the bladder and along the anterior wall of the abdomen to the umbilicus, and, when covered by peritoneum, constitutes the *hypogastric or external umbilical fold*. See Fig. 635, p. 386.—Tr.

⁵ The *deep or inferior epigastric artery* extends from the external iliac artery along the anterior wall of the abdomen, external to and parallel with the obliterated hypogastric artery, and, when covered with peritoneum, constitutes the *epigastric fold*. See Fig. 635, p. 386.—Tr.

⁶ Or *internal inguinal aperture*.

FIG. 636.—LOWER PORTION OF THE ANTERIOR WALL OF THE ABDOMEN AND THE ANTERIOR WALL OF THE PELVIS, WITH THE URINARY BLADDER, SEEN FROM BEHIND, THE PARIETAL PERITONEUM AND THE TRANSVERSALIS FASCIA HAVING BEEN REMOVED. LIGAMENT OF HESSELBACH (LIGAMENTUM INTERFOVEOLARE); *MEDIAN (see note ³ above) and *EXTERNAL (see note ⁴ above) UMBILICAL LIGAMENTS; DEEP OR INFERIOR EPIGASTRIC ARTERY. INTERNAL OR DEEP ABDOMINAL RING (INTERNAL INGUINAL APERTURE). LIGAMENT OF HENLE (FALX APONEUROTICA INGUINALIS). VAS DEFERENS.

*Ligamenta umbilicalia—*Umbilical ligaments.



¹ *Anomalous Obturator Artery*.—The normal origin of the obturator artery is from the internal iliac artery, and it sends an anastomotic branch to the deep epigastric artery; but quite frequently this anastomotic branch becomes the main trunk, so that the obturator artery arises, as here, from the external iliac in common with the deep epigastric. When the anomalous obturator artery takes the course shown in the figure, directly downwards across the internal iliac vein to reach the obturator canal, the anomaly is of little practical importance; but in some cases (once in fifty-eight bodies, and more often in males than females) the anomalous obturator artery courses first inwards, and then arches backwards on the inner side of the femoral ring, so that it is in danger of being cut when dividing the stricture in cases of strangulated femoral hernia.—Tr.

² See note ¹ to p. 387.

³ *Adminiculum Lineæ Albæ*.—This name is given to the triangular expansion which spreads out to the right and the left of the lower end of the linea alba, by means of which expansion the linea alba is attached on each side to the crest of the pubis behind the outer head of the rectus abdominis muscle.—Tr.

⁴ Or *internal inguinal aperture*.

⁵ The fascia covering the external iliac vessels is known as *Abernethy's fascia*.—Tr.

FIG. 637.—REGION OF THE INGUINAL POUCHES, FOVÆ INGUINALES, AS SEEN AFTER THE PARIETAL PERITONEUM HAS BEEN STRIPPED FROM THE ABDOMINAL WALL. LEFT SIDE OF THE BODY. RELATION OF THE TRANSVERSALIS FASCIA TO THE INTERNAL OR DEEP ABDOMINAL RING (INTERNAL INGUINAL APERTURE) AND TO THE FEMORAL OR CRURAL RING. CONNEXION OF THE TRANSVERSALIS FASCIA WITH THE SHEATH OF THE EXTERNAL ILIAC ARTERY AND VEIN (see note ⁵ above): SEPTUM FEMORALE (CLOQUETI), THE FEMORAL OR CRURAL SEPTUM. PROLONGATION OF THE TRANSVERSALIS FASCIA FROM THE INTERNAL ABDOMINAL RING ON TO THE SPERMATIC VESSELS AND THE VAS DEFERENS (INFUNDIBULIFORM FASCIA). RELATIONS OF THE EXTERNAL ILIAC LYMPHATIC PLEXUS AND OF THE *LYMPHATIC GLAND OF ROSENMÜLLER TO THE FEMORAL (OR CRURAL) RING, OCCLUDED BY THE FEMORAL (OR CRURAL) SEPTUM.

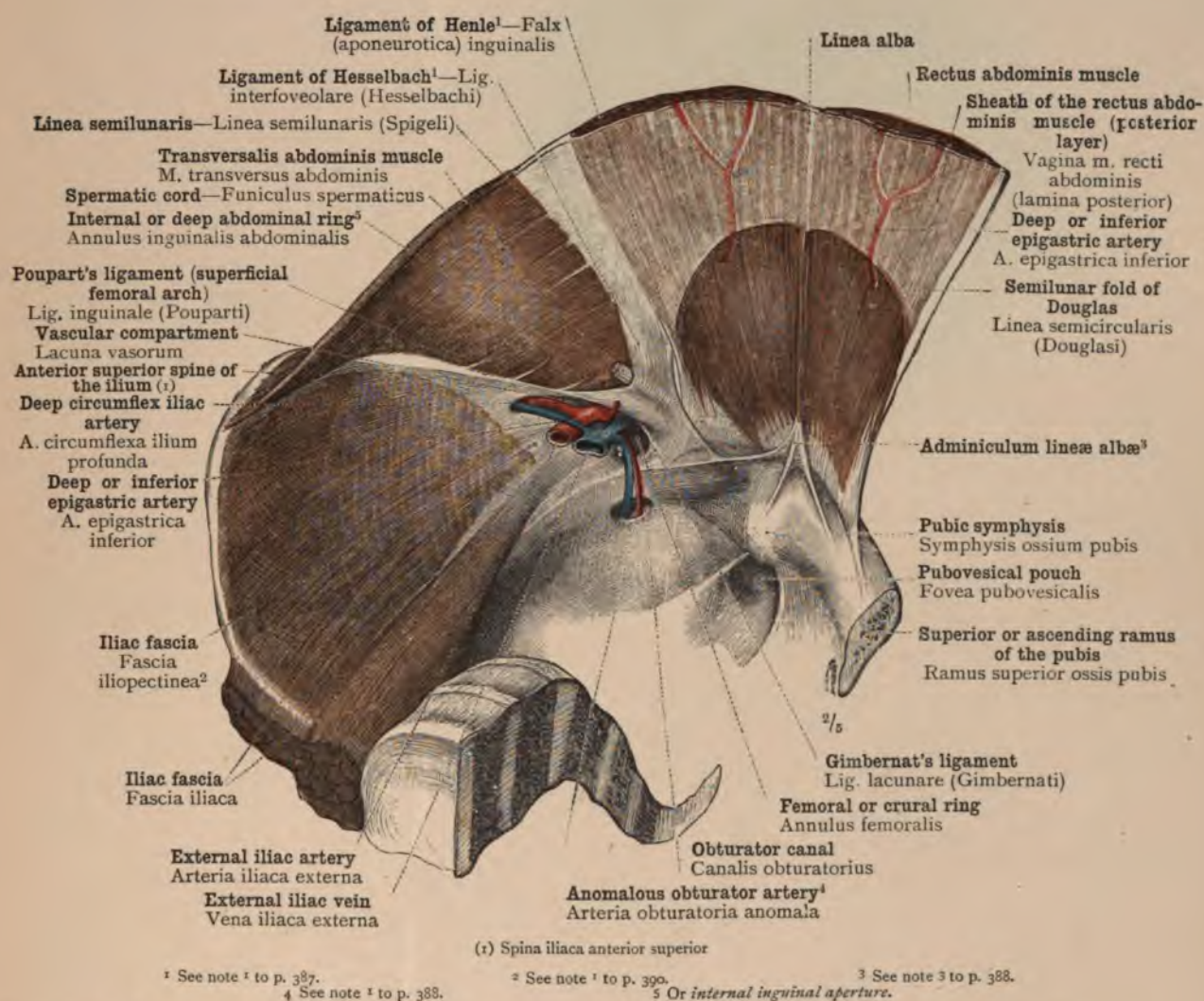


FIG. 638.—ANNULUS INGUINALIS ABDOMINALIS, INTERNAL OR DEEP ABDOMINAL RING (INTERNAL INGUINAL APERTURE), AND ANNULUS FEMORALIS, FEMORAL OR CRURAL RING, LAID BARE ON THE LEFT SIDE OF THE BODY BY THE REMOVAL OF THE PARIETAL PERITONEUM AND THE TRANSVERSALIS FASCIA; SEEN FROM BEHIND. LIGAMENTUM INTERFOVEOLARE (HESSELBACHI), LIGAMENT OF HESSELBACH, AND FALX (APONEUROTICA) INGUINALIS, LIGAMENT OF HENLE. RELATION OF THE OBTURATOR ARTERY, WHICH IN THIS INSTANCE ARISES FROM THE DEEP EPIGASTRIC ARTERY, TO THE FEMORAL OR CRURAL RING.

Abdominal Apertures of the Inguinal and Femoral Canals.

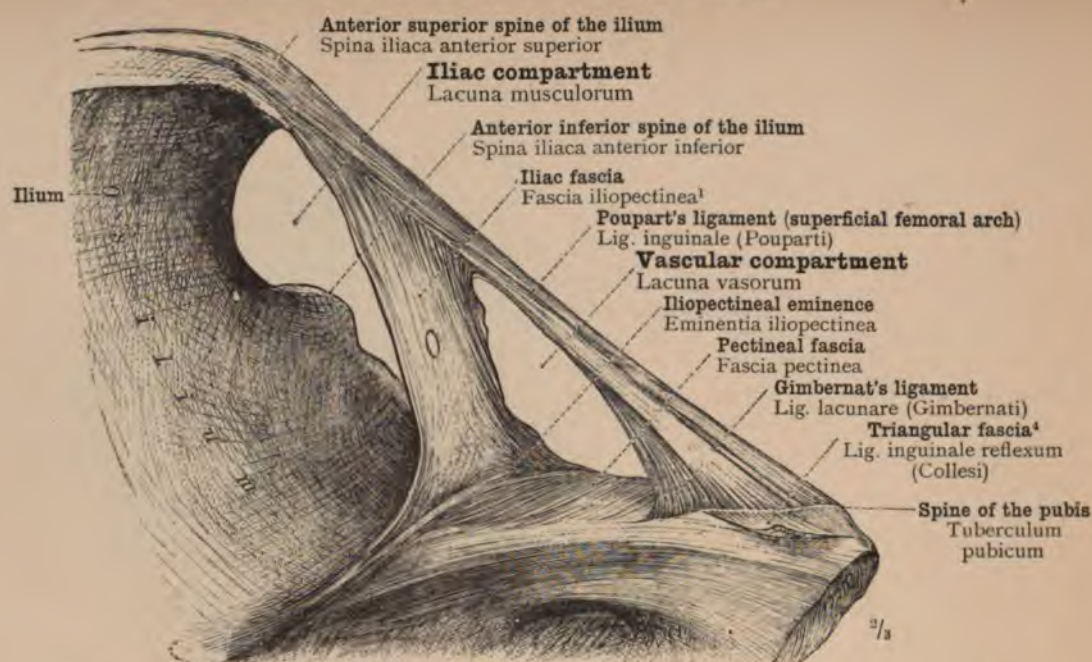
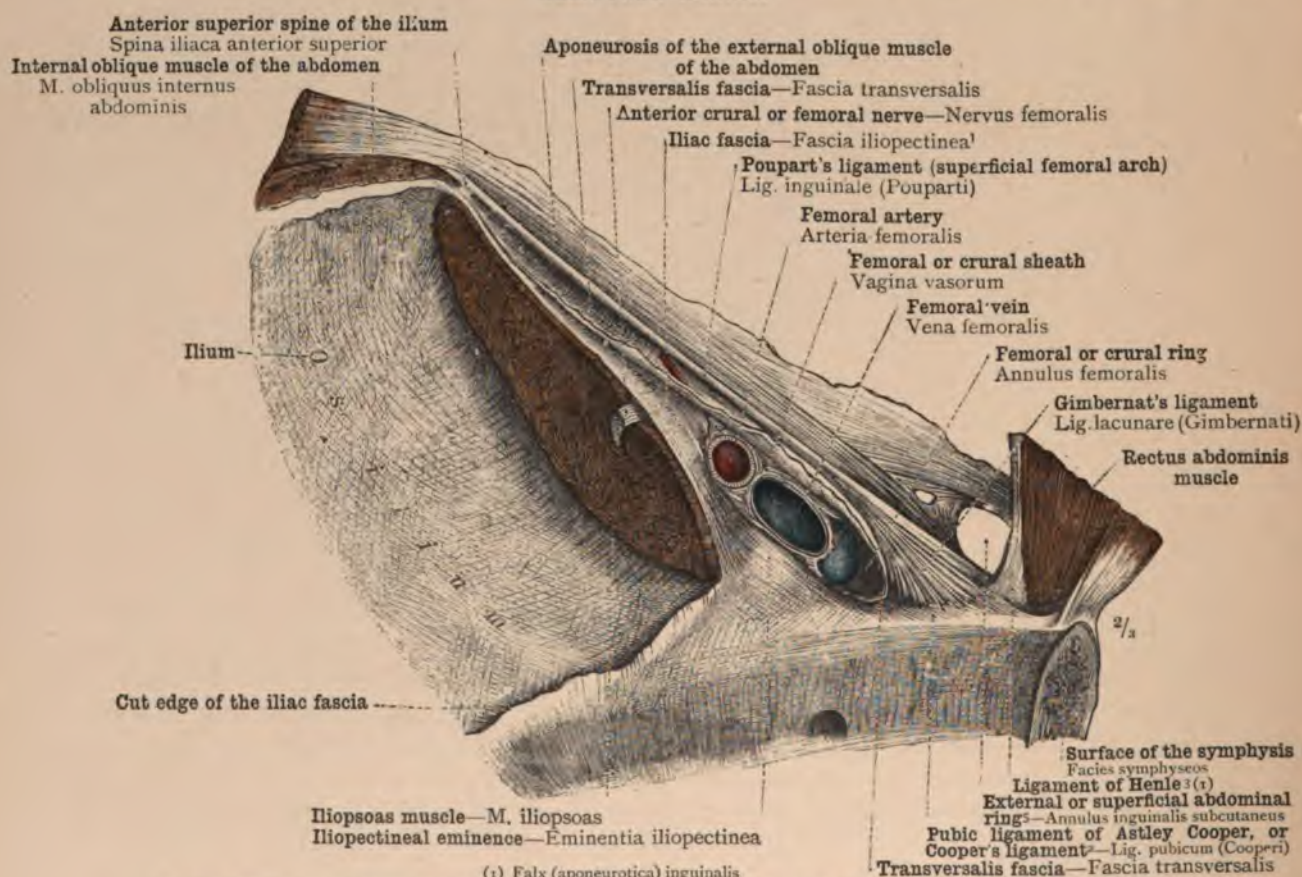


FIG. 639.—LACUNA MUSCULORUM ET LACUNA VASORUM, ILIAC COMPARTMENT AND VASCULAR COMPARTMENT. SEEN FROM BEHIND.



(1) Falx (aponeurotica) inguinalis

¹ *Fascia iliopectinea*.—The author distinguishes by this name that portion of the *iliac fascia* (of English anatomists) which, covering the iliopsoas muscle as it passes beneath Poupart's ligament, forms the septum between the *iliac compartment* and the *vascular compartment* of the space beneath that ligament, and passing inwards behind the femoral vessels to form the posterior layer of the femoral or crural sheath becomes continuous with the *pubic portion of the fascia lata* of the thigh, or *pectineal fascia* (see description at foot of Fig. 598), p. 349. From the fact that this portion serves to connect the iliac with the pectineal fascia arises the name "*iliopectineal fascia*."—Tr.

² *Pubic Ligament of Astley Cooper, or Cooper's Ligament*.—This name is given to a thickened bundle of transverse fibres at the upper part of the pectineal fascia along its attachment to the innermost portion of the iliopectineal line. The fibres are closely connected with, and in part derived from, Gimbernat's ligament.—Tr.

³ See note ¹ to p. 387.

⁴ See note ² to p. 383.

⁵ Or *external inguinal aperture*.

FIG. 640.—PARTS BENEATH POUPART'S LIGAMENT, THE CONTENTS OF THE LACUNA MUSCULORUM OR ILIAC COMPARTMENT AND LACUNA VASORUM OR VASCULAR COMPARTMENT, AND THEIR MUTUAL RELATIONS. LEFT SIDE; SEEN FROM BEHIND.

Lacuna musculorum, or iliac compartment.—Lacuna vasorum, or vascular compartment.

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INDEX

TO THE MYOLOGY

AND TO THE SUPPLEMENT ON THE ANATOMY OF HERNIA

Certain names in this Index have an asterisk (*) prefixed; these, as more fully explained in the Translator's Preface, being terms that form part of the English nomenclature used in this work, but which are not commonly employed by English anatomists. To other names, a dagger (†) is prefixed; these are Latin names used by the author in the original work, but not included in the official nomenclature of the "Anatomische Gesellschaft."

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